FACTORS AFFECTING THE CONCENTRATION OF FINANCIAL SERVICES IN THE NONMETROPOLITAN UNITED STATES, 2000-2003

by

RYAN BUTTON

B.S., Stephen F. Austin State University, Nacogdoches, Texas, 2004

A THESIS

submitted in partial fulfillment of the requirements for the degree

MASTER OF ARTS

Department of Sociology, Anthropology, and Social Work
College of Arts and Sciences

KANSAS STATE UNIVERSITY
Manhattan, Kansas

2008

Approved by:

Major Professor
W. Richard Goe

Abstract

Over the last twenty-five years, the environment for banking has changed radically. In the 1980s, legislation was enacted to permit both interstate branching and combinations of banks, securities firms, and insurance companies. A generally strong economy, as well as deregulation, led to marked improvements in bank profitability and capital positions. At the same time, however, the deregulation of products and markets intensified competition among banks and between banks and nonbank financial companies. This, combined with improved information technology, applications for banking, accelerated the consolidation of the banking industry through mergers and acquisitions and set the stage for the establishment of huge banking firms of unprecedented size and complexity.

While processes such as mergers and acquisitions decreased the number of firms, competition between these firms prompted the growth of new establishments in banking and financial services. While a larger proportion of the literature has focused on the structural and regulatory changes among firms that have arose during this transformation, little attention has been given to the factors that affect the location of physical establishments. This is particularly the case in relation to the location of new banking establishments in the nonmetropolitan U.S. It is the intention of this thesis to come to a better understanding of the factors that affect the locations of these establishments, in hopes of adding more insight into the process of bank establishment growth.

Table of Contents

List of Figures

List of Tables

Acknowledgements

I would like to express my sincere thanks to my academic advisor, Dr. Richard Goe, for his assistance and guidance throughout my graduate studies at Kansas State University. I am deeply indebted to Dr. Goe for his comments and advice, which proved enormously important in completing my Master's degree.

I would like to thank the other members of my advisory committee, Dr. Patrick Akard and Dr. Lazlo Kulcsar whose comments and suggestions were invaluable.

Thanks to my fellow graduate students, faculty and staff at Kansas State University for their support. Special gratitude is owed to Andrea Button for her comments on my thesis, and encouragement during my graduate studies. I am forever grateful to my family and friends, whose love, patience, and care provided me with the strength to accomplish this work.

Dedication

To Roger and Sheila Button for allowing me to ask why and never letting me be satisfied with any one answer. To Andrea and Lucas Button for giving me the strength to finish what I thought could not even be started. I have often wondered how individuals come to Sociology, and for myself I must blame you.

CHAPTER 1 - Introduction

A bank is a business that provides banking services for profit to the customers of the bank. Traditional banking services include receiving deposits of money, lending money and processing transactions. Many banks offer ancillary financial services to make additional profit; for example: selling insurance products, investment products or stock brokerage. Banks' activities can be characterized as retail banking, dealing directly with individuals and small businesses, and investment banking, relating to activities on the financial markets. Most banks are profit-making, private enterprises. However, some are owned by government, or are non-profit making. This thesis will focus on retail banking. After the Great Depression, the U.S. Congress required that banks engage only in banking activities, whereas investment banks were limited to capital markets activities. Since the two no longer have to be under separate ownership, some use the term "retail bank" to refer to a bank or a division of a bank that mostly deals with deposits and loans from corporations, businesses and individuals (Dymski 199: 10).

Over the last twenty-five years, the environment for banking has changed radically. For example, between 1981 and the end of 1997, there were 7,402 bank mergers, totaling $1.8 trillion in assets (Dymski 1999: 12). Legislation, such as the 1982 Garn-St. Germain Act, was enacted to permit both interstate branching and combinations of banks, securities firms, and insurance companies. A generally strong economy, as well as deregulation, led to marked improvements in bank profitability and capital positions. At the same time, however, the deregulation of products and markets intensified competition among banks and between banks and nonbank financial companies. In addition, together with improved information technology, deregulation accelerated the consolidation of the banking industry through mergers and acquisitions and set the stage for the establishment of huge banking firms of unprecedented size and complexity.

One way to see how the size of banking firms has changed in recent history is to look at the changes in the top ten bank firms over the last six year. Table 1 lists the top ten bank holding companies in the U.S. for the years 1999 and 2006. The first noticeable change is in the difference of the total size of assets between the two periods and the

magnitude to which this total amount has changed. According to the Federal Deposit Insurance Corporation (FDIC) September 30, 1999 report the top ten firms had cumulative assets of 2854 billion dollars. Of these firms, Citigroup and Bank of America accounted for 45 percent of the top ten assets with Citigroup assets listing 668 billion and Bank of America listing 618 billion. When you add in the Chase listing with 366 billion dollars in assets the top three firms alone account for approximately 50 percent of the assets held by the top ten firms in assets alone. The distribution of assets is even further unequal when you consider that it takes the bottom five firms total assets to account for the single assets of the top firm Citigroup. When comparing proportions from 1999 to 2006 not much has changed except the name of the firms. The top three firms of Citigroup, Bank of America Corp., and J.P. Morgan Chase & Co still account for approximately 50 percent of the top ten accumulative assets. However, it now takes the bottom six firms total assets to account for the assets of the top firm Citigroup Inc.

Table 1 Top Ten Bank Holding Companies in the U.S. Ranked by Assets

Top Ten Bank Holding Companies in the U.S. ranked by assets							
Figures as of September 30, 1999, in U.S. dollars				Figures as of September 30, 1999, in U.S. dollars			
Rank	Firm	Assets	%	**Rank**	Firm	Assets	%
1	Citigroup	668 billion	23	**1**	Citigroup Inc.	1746 billion	24
2	Bank of America	618 billion	22	**2**	Bank of America Corp.	1452 billion	20
3	Chase	366 billion	13	**3**	J.P. Morgan Chase & Co.	1338 billion	18
4	Bank One	261 billion	9	**4**	Wachovia Corp.	560 billion	8
5	J.P. Morgan	261 billion	9	**5**	Wells Fargo & Co.	483 billion	7
6	First Union	237 billion	8	**6**	HSBC North America Inc.	474 billion	7
7	Wells Fargo	202 billion	7	**7**	Taunus Corp.	430 billion	6
8	Fleet Financial Group	104 billion	5	**8**	Washington Mutual Inc.	348 billion	5
9	Key Corp	80 billion	3	**9**	U.S. Bancorp	217 billion	3
10	PNC Bank	37 billion	1	**10**	Countrywide Financial Corp.	193 billion	2
	Total	2854 billion	100		Total	7241 billion	100

(Source FDIC)

This change in proportion of assets gives rise to the second noticeable change between 1999 and 2006, which concerns the dramatic change in total number of assets. In 1999 the total number of assets for the top ten firms was 2.854 trillion dollars. However

by 2006 this number had increased to 7.241 trillion dollars. This represents a 153.7 percent increase in just six years. Over this time period Citigroup, the number one ranked firm for both years, was able to raise its total assets from 668 billion to 1.746 trillion. This accounts for a 161.4 percent increase in assets. Bank of America, which was ranked second for both years, increased it assets from 618 to 1.452 trillion dollars. This growth accounted for a 135 percent increase in assets.

One way that these firms accomplished this dramatic increase in assets was through the process of mergers. These dramatic changes in assets were accompanied by a change in the firm's name as two distinct firms would merge together to form one new firm. The merger between Chase and J.P. Morgan stands as a good example of this process. In 1999 Chase was ranked third in the top ten with 366 billion in assets and J.P. Morgan was ranked at fifth with 261 billion dollars in assets. However in 2000 both Chase and J.P. Morgan merged to form J.P. Morgan Chase and Co. Further in 2006 the FDIC has authorized J.P. Morgan Chase and Co. to merge with another top ten firm called Bank One. When combined the new firm held total assets of 1.338 trillion dollars in 2006. I will discuss more of the changes in regulation and structure within the banking field and how these have affected banking firms in chapters two and three.

The changes I have observed among the top ten firms, as well as these that occurred among smaller firms (which I have not discussed), had a dramatic effect on the number of banking establishments in the United States.[1] Using the taxonomy of the North American Industrial Classification System (NAICS), banks are classified under the NAICS code of 5221. The U.S. Census Bureau defines banking as an industry comprised of establishments primarily engaged in accepting demand and other deposits and making commercial, industrial, and consumer loans (U.S. Census, 2004). As defined above, banking encompasses other NAICS codes: National Commercial banks, NAICS code 5221101 and State Commercial Banks, NAICS code 5221102. Data for the composite category of commercial banking (NAICS 522110) are listed in Table 2 for the year 2000-2003.

[1] Within this thesis I will define a firm as an organization that may or may not include numerous establishments. Establishments will be concerned with actual physical buildings where transactions between the business and larger population take place. While a firm does reside in an actual establishment, the establishment is concerned with the housing of a central office and may or may not deal with the facilitation of actual transactions with the larger population.

The data in Table 2 indicates there was an increase of 8,627 commercial establishments over the 2000-2003 periods. In 2000, there were 105,568 commercial establishments in the U.S. This number increased to 114,268 establishments in 2002. The largest increase occurred during 2002 when 7,055 new commercial banking establishments were opened.

Table 2 Total Number of Commercial Banking Establishments

Total Number of Commercial Banking Establishments NAICS 5221				
Year	**Total # Establishments**	**Change Prev. year**	**Total # Employees**	**Change Prev. Year**
1998	105386		1920433	
1999	104045	-1341	1937191	16758
2000	105568	1523	1934668	-2523
2001	107231	1663	2062520	127852
2002	114286	7055	2110093	47573
2003	114195	-91	2081714	-28379
	Total # New Estab.	8809	**Total # New Emp.**	161281

(Source U.S. Census)

These new establishments also brought new jobs into the labor market. Starting in 2000 the total number of employees in commercial banks in the United States was 1,934,668. By 2003, there were 2,081,714 U.S. workers employed in commercial banking. Thus, there was an increase of 147,046 jobs over this period. Interestingly, the largest increase in jobs occurred in 2001, the year prior to the rapid spurt in establishment growth. During 2001, 127,852 new jobs were created and 1,663 establishments opened in commercial banking. This is compared to 47,573 jobs created in 2002 when there were 7,055 new establishments opened.

Although the condition of the industry has greatly improved over the past decade or so, banks and the regulatory community will face significant challenges in the years ahead. Competition will continue to be intense, and few banks, if any, will be insulated from its effects. In the view of some observers, (Dymski 1999, Glasberg and Skidmore, 1997) rapid consolidation of the banking industry will continue and may adversely affect the availability of credit for small businesses and local economies. Large, complex banking organizations may pose difficult supervisory issues, while the burden of reporting and other regulatory requirements will fall heavily and disproportionately on

small banks unless remedial action is taken. To understand more about these problems I will explore both the policy and structural changes within the commercial banking industry.

The purpose of this thesis is to examine structural factors which have contributed to the growth of banking establishments in the nonmetropolitan United States over the 2000-2003 periods and identify factors associated with where these establishments have been located. As will be shown below, the banking industry is expanding beyond the boundaries of large metropolitan centers in the United States. A key goal of this thesis is to shed some light on where and why this has occurred.

The next two chapters examine structural factors that have contributed to the growth of banking establishments in the U.S. Chapter Two, provides an in depth examination of the political-cultural framework developed by Neil Fligstein (2001) to address how market participants try to create stable fields and find social solutions to competition, and how state and market are intimately linked. This theoretical framework identifies structural characteristics of markets which explain why banking establishments are growing in the U.S. Chapter Three reviews changes in regulatory policy that concern financial markets and examines how the changes in these policies contributed toward the creation of a "market field" in commercial banking that was conducive to the growth of new bank establishments.

The fourth chapter reviews literature that provides insight into factors that have contributed to the growth and location of bank establishments in nonmetropolitan counties of the United States. The key purpose is to identify factors that influence where banking establishments have been located in nonmetropolitan America.

The fifth chapter provides a statement of formal hypothesis and addresses how the literature reviewed in the previous chapters apply to my research question. It is in this chapter that I build off of the reviewed establishment literature on banking and apply the relevant dimensions of banking literature to the theory of industrial location. A model will be proposed with explanatory variables to account for the creation of new banks according to a rise in niche competition created by migration and bank loyalty.

The sixth chapter describes the research methods that I have used. Within this chapter I describe the unit of analysis and define the study population. This chapter also

includes a description of my research design and the data that use along with the method of data analysis used to test the set of hypothesis that I stated in the previous chapter. Chapter Seven presents the research findings. Finally, the Eighth discusses the findings and presents the conclusions that can be drawn from this research.

CHAPTER 2 - The Political-Cultural Approach

In his book The Architecture of Markets, Neil Fligstein (2001) explains how key insights of the sociology of markets have been framed as reactions to neoclassical economic views of the functioning of markets. In doing so, empirical work in sociology on markets has focused on actual processes from specific markets, while little progress has been made on moving away from specific markets to a more general perspective of market dynamics (Fligstein, 2001: 14). Fligstein proposes a general approach to understand institutions in modern society called the political-cultural approach. Fligstein states that the key insight of the political-cultural approach is to consider that social action takes place in arenas, which may be termed "fields" (Fligstein, 2001: 15).

According to Fligstein, fields contain social actors who try to produce a system of domination by producing a local culture that defines localized social relationships between actors within the field (Fligstein, 2001: 15). These local cultures provide an interpretive framework for actors, define social relationships, and help individuals interpret their own position in a set of social relationships, which allow the actors to interpret the actions of others with whom they interact on a period-to-period basis (Fligstein, 2001: 15).

Markets as fields require the researcher to specify what a market is, who the players are, what it means to be an incumbent and a challenger, and how the social relationships and cultural understandings that come into play create stable fields by solving the main problems of competition and controlling uncertainty (Fligstein, 2001: 17). Fligstein accepts the perspective that a market is a self-reproducing role structure of producers, and contends that a stable market as a field means that the main players in a given market are able to reproduce their firms on a period-to-period basis (Fligstein, 2001: 17).

Markets can then be viewed as fields that exist for the production and sale of some good or service, and that these relationships are characterized by structured exchange (Fligstein, 2001: 30). A market as a field becomes stable when the product

being exchanged has legitimacy with customers, and the suppliers of the good or services are able to produce a status hierarchy in which the largest suppliers dominate the market and are able to reproduce themselves on a period-to-period basis (Fligstein, 2001: 30). Within the field, buyers and sellers engage in repeated exchange, and begin to view their survival and reproduction as dependent upon these repeated exchanges; therefore, they are prompted to construct and maintain organizational structures designed to bring stability to the continuation of the market exchange (Fligstein, 2001: 30). Fligstein argues that markets are mainly structured by sellers who are looking for buyers. Their firm's existence is at stake if a stable market does not develop and they are unable to valorize the surplus value contained within their product (Fligstein, 2001: 31).

The market in effect, consists of two types of firms that compete with each other to sell a particular product or service in a market. The two types of firms consist of incumbent and challengers. Incumbent firms are conceptualized as those that dominate a particular market by creating stable relationships with other producers, suppliers, customers and the government (Fligstein, 2001: 17). Challenger firms fit into the dominant logic of a market by either finding a niche in the market or imitating dominant firms (Fligstein, 2001: 17).

The social relations between firms in a stable market are created by the incumbent firm producing the dominant cultural meanings for the market that increase their own survivability, while the challenger firms survive by accepting, utilizing, and reproducing the culture of the incumbent firm (Fligstein, 2001: 32). This means that if a market becomes unstable it will be the objective of the incumbent firm to produce a market with a stable field.

The structures developed to create stability in the field involve both a local culture, characterized by cognitive frames, and concrete social relations. Fligstein notes that cognitive frames are of two sorts. The first is they give the actor a general societal understanding of how to organize firms and markets while addressing stable ways to compete and ultimately survive. The second type gives the individual specific understandings of how the market works (Fligstein, 2001: 32). Together these market agreements make up what Fligstein calls conceptions of control. In concern to concrete social relations, Fligstein argues that these relations are a reflection of the market's

unique history, because the constitution of the relations demonstrates which firms are incumbent and why (Fligstein, 2001: 32).

Conceptions of control reflect market-specific agreements between actors in firms on principles of internal organization, tactics for competition or cooperation, and the hierarchy or status ordering of firms in a given market (Fligstein, 2001: 35). Conceptions of control are concerned with a local knowledge that when followed by actors produces a stable market condition where social relations between incumbent and challenger firms allow incumbent firms to reproduce those relations on a period-to-period basis (Fligstein, 2001: 35). A conception of control is also a worldview that allows actors to interpret the actions of others and a reflection of how the market is structured (Fligstein, 2001: 35).

While it does seem that conceptions of control formed by firms would work well to stabilize a field, it was gradually discovered that such rules would be more effective in solving market problems if they were credited by state participation and support. These organizations, groups, and institutions that comprise the state in modern capitalist society claim the right to make and enforce the rules governing all interactions in a given geographic area (Fligstein, 2001: 39). Under the political-cultural approach, Fligstein perceives the state as a set of fields that can be defined as 'policy domains' (Fligstein, 2001: 39).

Policy domains are arenas of political action where bureaucratic agencies and representatives of firms and workers meet to form and implement policies which produce stable patterns of interaction in non-state fields (Fligstein, 2001: 39). Once a government is formed in capitalist societies, the political process is about incumbent groups building government capacity to ensure their dominant position and challenger groups trying to reorient existing domains or creating new ones to include them (Fligstein, 2001: 40). This leads to Fligstein's second proposition, which states initial formation of policy domains and the rules they create affecting property rights, governance structures, and rules of exchange shape the development of new markets because they produce cultural templates that determine how to organize in a given society (Fligstein, 2001: 40). Further, that the initial configuration of institutions and the balance of power between government officials, capitalists, and workers at that moment account for the persistence of, and difference between, national capitalisms (Fligstein, 2001: 40).

States serve a central role in concern to the creation and enforcement of laws that govern market institutions. Fligstein argues that states are important in concern to the formation and stability of markets, but contends that to what degree states get involved within market regulation is largely a matter of historical process. Therefore, in times of market instability states become the focus of crisis in any important market. However, as will be discussed later, the state, working under the neoclassical perspective, can also create crisis by deregulating policies within the market. Fligstein contends that pressure on states can come from two sources consisting of other states and existing markets that can be constructed either locally or globally (Fligstein, 2001: 41).

Fligstein contends that the purpose of action in a market is to create and maintain a stable internal structure within the firm and to form social relations across the market to allow the firm to survive. In doing so, dominant firms set the rules by creating a local culture, or conceptions of control, that structures individual perception of how a market works and allows actors to interpret other actor's actions. Fligstein notes that there are two forms of potential sources of instability within a market that actors must acknowledge if to create a stable field. The first deals with the tendency of firms to cut one another's prices as they compete for finite market shares, and the second deals with the problem of keeping the firm together as a political coalition (Fligstein, 2001: 70). Therefore, the main purpose of the formation of conceptions of control is to construct social understandings that avoid both sources of instability.

Fligstein suggests a number of different ways that firms may compete for market shares while still avoiding the effects of direct competition and increase instability within the market: cartels, publicized prices, raising barriers to entry, limited production, patents, licensing agreements, state intervention, and networking (Fligstein, 2001: 73). Fligstein suggests that diversification is another way that firms can compete among other firms without directly resorting to price competition.

Diversification implies entering new markets to increase the probability of the firm's survival (Fligstein, 2001: 72). Diversification splinters markets into smaller, specialized niche markets which can reduce competition. However, this can also allow for the reintroduction of competition as smaller challenger firms can fill these niches

while simultaneously being constrained by the criteria of their own bureaucratic social culture through the conceptions of control that they have created.

In concern to internal principles of organization, Fligstein contends that there are two ways actors indirectly control competition (Fligstein, 2001: 73). The first is integration in which the firms expand through merging with or acquiring other firms (Fligstein, 2001: 73). Integration may be either vertical or horizontal; vertical integration involves the merger or acquisition of a supplier or customer to limit their availability to other firms and to secure the services that they provide for the firm (Fligstein, 2001: 73). Horizontal integration involves a merger with or acquisition of competitors in a market to form a larger organization (Fligstein, 2001: 73).

In concern to the problem of change and stability within markets, Fligstein suggests that markets undergo three phases in their formation and operation consisting of emergence, stability, and crisis (Fligstein, 2001: 76). The emergence phase occurs when a new market is created and firms are formed and try to enter the market, with each firm providing a different conception of what the market will be (Fligstein, 2001: 77). This is to state that the major problem is that it is not clear how to control the market as incumbent and challenger firms have not developed and there is no accepted set of social relations, or conceptions of control.

A key aspect of this phase concerns how the structure of firms in the market develops. Fligstein contends that large firms control more internal and external resources than small firms. Thus the emergence of large firms in the structure of the market is a key variable in the development of social structures in that market (Fligstein, 2001: 77). This leads to a set of propositions. First, Fligstein states that at the beginning of a new market, the largest firms are the most likely to be called to create a conception of control and political coalition to control competition (Fligstein, 2001: 77). Second, power struggles within firms occur with regard to who can solve the problem of how to best organize the firm to deal with competition, with the winners of the struggle imposing their organizational culture and design on the firm (Fligstein, 2001: 77). Further, new markets borrow conceptions of control from nearby markets, particularly when firms from other markets choose to enter the new market (Fligstein, 2001: 78).

This leads to the stability phase when a power or status hierarchy crystallizes in the field and incumbent firms are able to impose a conception of control over other firms in the fields that reinforces and maintains their dominant position (Fligstein, 2001: 79). This is important because a stable market depends upon the social relationships developed by the larger, incumbent firms as they pay attention to each other. Challenger firms are largely ignored because they oppose little threat to the stability of the market since their market share is much smaller. This leads to another set of propositions. The first is that within markets with stable conceptions of control, market participants widely agree on the conception of control and the status hierarchies and strategies they imply (Fligstein, 2001: 81). Next, the incumbent firms pay attention to the actions of other incumbent firms, not challenger firms, while challenger firms focus on incumbent's behavior (Fligstein, 2001: 81). Further, firms in stable markets continue to use the governing conception of control, even when confronted with outside invasion or general economic crisis (Fligstein, 2001: 81).

This leads to the crisis phase. Fligstein notes that a crisis comes to a market when the largest firms are unable to reproduce themselves from period to period and some fail (Fligstein, 2001: 83). Fligstein argues that crisis within a market can come from three kinds of events consisting of transformation, invasion, and/or change in regulation. Fligstein argues that markets in crisis are susceptible to transformation, and are the result of exogenous sources such as invasion, economic crisis, or political intervention by the state (Fligstein, 2001: 83). In concern to invasion, Fligstein contends that firms are likely to enter closely related markets where they can successfully impose a new conception of control to increase their advantage or, they enter the same product market in a different geographic area, thereby undermining a local stable order (Fligstein, 2001: 83). Further, when firms begin to fail, the intra-organizational power struggle heats up, leading to higher turnover of top personnel and greater activism by both boards of directors and non-management shareholders (Fligstein, 2001: 83). This is to say that new sets of organizational actors attempt to reconstruct the firm along the lines of the invaders.

This theoretical framework will be important in understanding how regulatory changes in markets can cause market destabilization and open up new niches within the market. These regulatory changes caused numerous structural changes within the

financial market resulting in what Fligstein referred to as the crisis phase. As these new market niches are revealed firms will move into these new domains with the intention of claiming as much of the market as possible. Once established within the niche, firms communicate by developing new conceptions of control to both communicate and promote their perception of what the new market should be.

The Application of Fligstein's Theory to Commercial Banking in the U.S.

Fligstein's theory provides a theoretical lens through which to view changes in the field of commercial banking that has taken place over the last several decades in the U.S. First the state-firm nexus has been critical as Federal regulatory changes allowed commercial banking firms to enter new niche markets from which they were previously prohibited and permitted the expansion of markets. The key regulatory changes are discussed in the next chapter. Second, the introduction of new applications of information technology for commercial banking (e.g. digital telecommunication systems, ATMs) also contributed toward the development of new conceptions of control within the market field of commercial banking. These changes created instability as well as crisis in some niche markets, such as the savings and loans, thereby contributing to a wave of mergers and acquisitions as firms attempted to create stability and ensure their survival. The recent growth of commercial banking in the nonmetropolitan U.S. may be viewed as a reflection of the geographic expansion of markets by U.S. banking and the development of new niche markets by U.S. banking firms as the conception of control within commercial banking in the U.S. has changed.

CHAPTER 3 - Regulatory Change and the Creation of an Environment Conducive to Bank Start-ups

This chapter will examine important regulatory changes that have influenced the commercial banking industry in the U.S. This analysis will reveal how these regulatory changes prompted the rise of new structures and conceptions of control as firms competed to fill the vacancy left by deregulation of structural characteristics of the commercial banking industry. To better make sense of how these changes occur I will use Fligstein's political cultural framework and argue that deregulation of the financial industry literally opened the market so much as to bring comparison of the changed market to that of Fligstein's conception of a new market.

Regulatory Change in Commercial Banking

In their book Corporate Welfare Policy and the Welfare State, Glasberg and Skidmore (1997) argue that bank deregulation was largely associated with the Savings and Loan bailout in the 1980s, in that the bailout was an extension of a history of state projects that together attempted to address the crises of capital accumulation.

The S&L industry was created as a part of the United States' economic recovery efforts following the Great Depression of the 1930s. During this time large commercial banks had abandoned smaller loans associated with housing lending in favor of more lucrative corporate and state lending. In response to this, Congress mandated depository institutions, such as S&L banks and mutual savings banks known as 'thrifts', to fill this void. To ensure an ongoing commitment to the home mortgage market, thrifts were prohibited by law from offering high interest rates on deposits and from investing in speculative instruments like real estate, stocks, and development projects (U.S. Congress: House 1989a).

The formal law that created the S&L industry was the Banking Act of 1933, also known as the Glass-Steagall Act, which temporarily established the Federal Deposit Insurance Corporation (FDIC), and the laws that denied banks the right to engage in

investment banking. The Banking Act of 1933 was enacted on February 27, 1932. It mandated that the United States be taken off the gold standard and greatly increased the ability of the Federal Reserve to influence the money supply. This legislation also made banking safer and less prone to speculation as a response to the Great Depression crisis.

The Banking Act of 1933 included the following restrictions on banking practices: first, it separated the activities of commercial banks and securities firms and prohibited commercial banks from owning brokerages (Glasberg and Skidmore, 1997: 31); second, it initiated the FDIC insurance (Glasberg and Skidmore, 1997: 31); third, it included Regulation Q, which prohibited paying interest on commercial demand deposits and capped the interest rate on savings deposits (Glasberg and Skidmore, 1997: 28).

These laws were to form the base of banking policy until 1980 when congress established the Depository Institutions Deregulation Committee (DIDC). The DIDC's charge was to free thrifts from rate regulations that diminished their competitiveness with non-depository financial organizations. The first policy change recommended by the DIDC was the suspension of Regulation Q. Regulation Q or the Q differential was enacted in 1933. It established interest rate ceilings for the entire banking industry and created an interstate-rate differential between commercial banks and S&Ls (Glasberg and Skidmore, 1997:28). This differential allowed thrifts to compete with commercial banks by offering a slightly higher return on savings. This provided thrifts the capital they needed to fulfill their mortgage mandate. The suspension of regulation Q created a regulatory environment in which the already weakened thrifts had to compete with commercial banks for deposits by matching interest rates. Because of inflated short term interest rates, this meant that thrifts were paying more for deposits than they were receiving for loans (Glasberg and Skidmore, 1997:28).

Another bank regulation that was enacted just prior to the Great Depression was the McFadden Act of 1927. The McFadden Act prohibited national banks from operating outside the borders of their home states and limited them to obey state regulations governing intrastate branching. However, banks were able to get around this act by the introduction of the bank holding company. The bank holding company is not a bank itself but a cover up corporation which is able to purchase a bank located in another state and operate it as a completely owned subsidiary (Glasberg and Skidmore, 1997: 28).

In order to stop this expansion of power, Congress passed the Bank Holding Company Act of 1956. In the provisions, it was left to state law to permit or prohibit interstate acquisitions. Secondly, banking and commerce were to be separated by restricting the companies to banking and closely related activities. The Federal Reserve was given sole regulatory responsibilities of bank holding companies; for a firm to become a bank holding company, they must obtain approval from the Federal Reserve. Also, the act allowed the already existing banks to keep their bank holding companies.

The creation of the Garner-St. Germain Act of 1982 legitimized the deregulation of the financial sector. All depository institutions were given the right to sell securities (FDIC). This required the repeal of sections of the Banking Act of 1933. Regulators were given the ability to use mergers to prevent thrift failures. This required the repeal of the McFadden Act of 1927, prohibiting interstate mergers in banking, and the repeal of the Douglas Amendment, which was an amendment to the Bank Holding Company Act of 1956 prohibiting interstate bank acquisitions unless expressly authorized by state statute. The Garner-St. Germain Act created the Federal Government's obligation to reestablish the net worth of failing thrifts (Glasberg and Skidmore, 1997: 32).

The last vestiges of the Banking Act of 1933 were repealed by two acts consisting of the Riegle-Neal Interstate Banking and Branching Efficiency Act of 1994 and the Gram-Leach-Bliley Act of 1999. The Riegle-Neal Interstate Banking and Branching Efficiency Act of 1994 accomplished two things. First it permitted adequately capitalized and managed bank holding companies to acquire banks in any state one year after enactment (FDIC). Second, as of June 1, 1997, it allowed interstate mergers between adequately capitalized and managed banks, subject to state laws and Community Reinvestment Act evaluations (FDIC).

The Gram-Leach-Bliley Act of 1999 disposed of the last legislation contained in the Banking Act of 1933. This act modified portions of the Bank Holding Act to allow affiliations between banks and insurance underwriters (FDIC). This act preserved the authority of states to regulate insurance, while simultaneously prohibiting state actions that have the effect of preventing bank-affiliated firms from selling insurance on equal basis with other insurance agents.

The regulatory changes in the financial sector were not the only catalyst that led to structural change in the commercial banking industry. In his book, The Bank Merger Wave, Gary Dymski (1999) argues there were interlocking causes that fueled the bank merger wave of the 1980's. New strategies were developed by banks. Wall Street began underwriting of stock swaps and stock paybacks by banks. Intertwined with these factors were the aforementioned regulatory changes.

In regards to new banking strategies, Dymski argues that U.S. banks have been forced by evolving macroeconomics and competitive circumstances to abandon their former strategies and adopt new ones. Some large banks are pursuing a strategy that might be termed upscale retail banking, which leads to an interest in acquiring new deposit bases (Dymski 1999: 16). Dymski notes that upscale retail banking involves identifying a preferred "upscale" customer base, and then delivering traditional banking services to this base, such as short-term consumer loans, long term mortgages, depository services, and nontraditional services such as mutual funds, insurance, and investment advice. This focus on "upscale" advantages could also create niche markets for firms willing to focus on a consumer driven base.

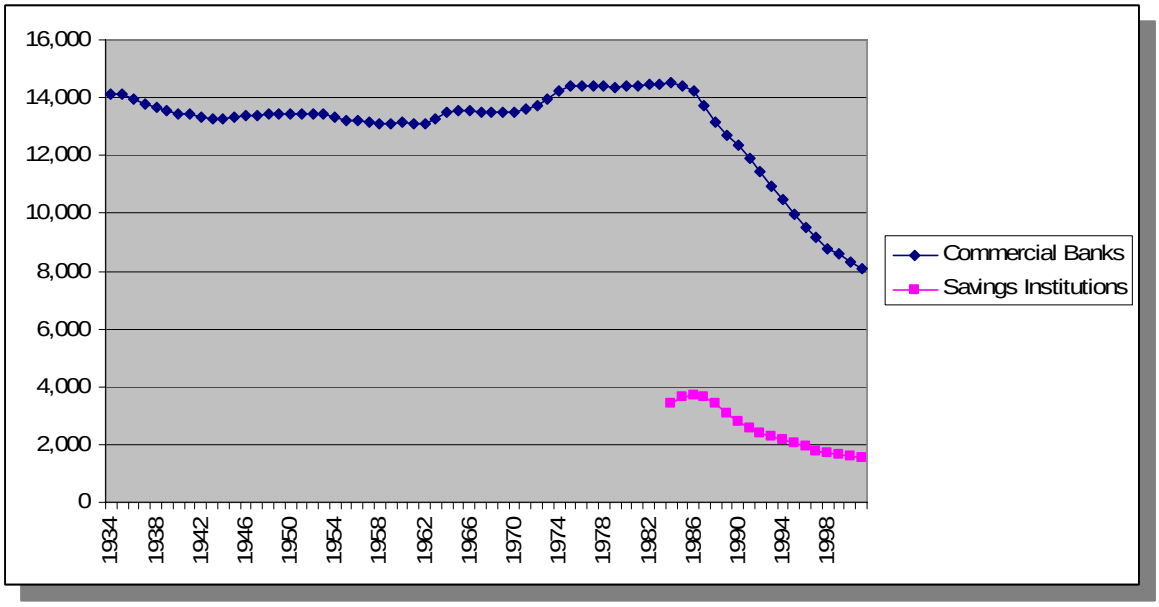
The second cause, Dymski (1999) argues, is that Wall Street has been willing to augment acquiring banks' retained earnings by supporting bank stock buybacks and stock swaps. He contends that the slowdown of the bank merger trend after stock prices declined following July 1998 strengthens this argument. The provision of Wall Street capital has usually been preceded by bank promises to cut costs dramatically by consolidating operations and lying off staff. Dymski (1999:16) notes that there has been a downward trend in bank employment in many states which can be traced, in part, to mergers; however, in most mergers, the cost cutting and layoffs actually produced disappointing equity-market expectations.

In regards to regulatory change Dymski's (1999) study documents the clash among regulators about which criteria should govern their assessment of bank performance. Dymski notes that the industry seems to be operating under two maintained hypotheses. The first is that the industry is over-banked and, the second is that financial innovations have made access to capital so universal for every class of economic agents as to remove it from the sphere of regulatory concern (Dymski 1999: 17). These

assumptions combined with, regulators' own inaction and acquiring banks' market expansion strategies has fueled a merger wave that regulators and the press can attribute to "market forces" (Dymski 1999: 17).

Important structural changes have occurred in the U.S. banking industry over the last several decades. One important change has been consolidation, mergers, and acquisitions. These structural changes are consistent with Fligstein's theory of the creation of conceptions of controls used by firms with the emergence of a new market. Further, these structural changes produced seismic changes in the shape of the financial market during the 1980s and early 1990s.

Figure 1 Total Number of U.S. Commercial Banks and Savings Institutions, 1934-2001

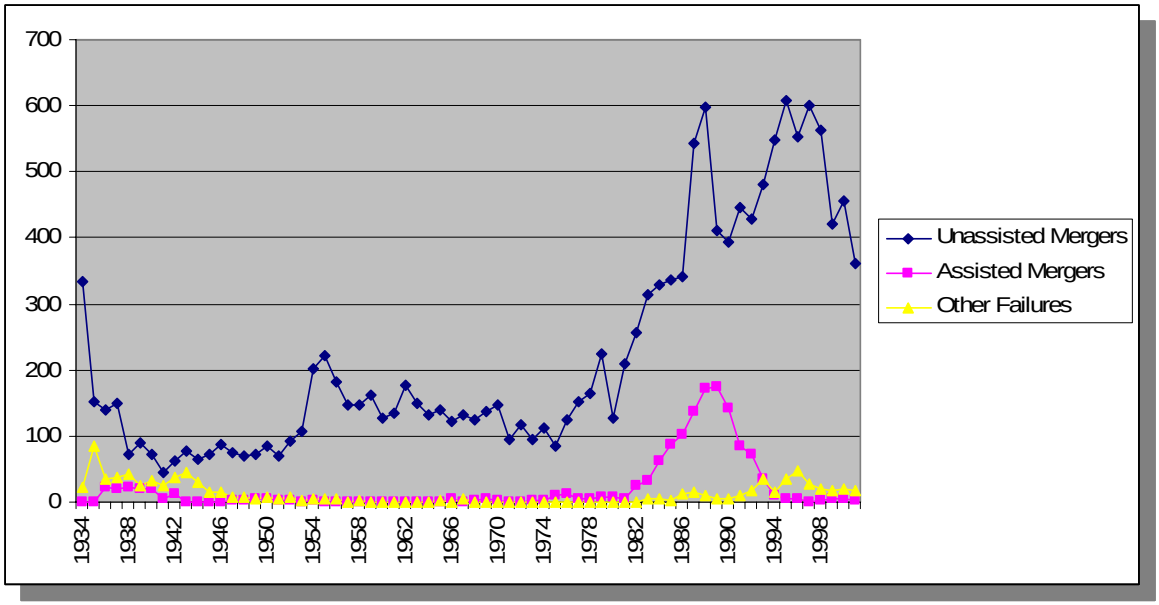


(Source: FDIC)

In concern to these changes, Table 3 on page 24 provides the raw data for commercial banks, and Figures 1, 2, and 3 interpret it. Figure 1 depicts the total number of U.S. commercial banks, 1934 to 2001. One dramatic change can be seen in the steady decline in the number of banking firms after 1985. Figure 2 provides some details on the sources of reduction in the ranks of U.S. banks. Note that the assisted mergers of failed banks were especially important in the late 1980s. In this figure the preference for market assisted workout strategies as a means of handling failing banks is evident, in that the relative volume of the number of assisted mergers far outweighs that of the failures.

The outstanding feature of Figure 2, however, is the trend in unassisted mergers. Until 1980, unassisted mergers encompassed about 1 percent of the bank population every year; but, they have grown in importance since then. By the mid 1990s, they began to eliminate more than 5 percent of the bank firm population annually. Despite the steady decline in banking firms, there has been some entry into commercial banking. Figure 3 shows that a significant number of new entrants have continued to enter banking during the 1990s. What is not clear in this figure is whether the improvement in the number of bank entrants during this period defines a new trend, or whether this represents just a temporary reversal in the post-1984 pattern of fewer entrants into the industry.

Figure 2 Causes of Reductions in Commercial Bank Population, 1934-2001



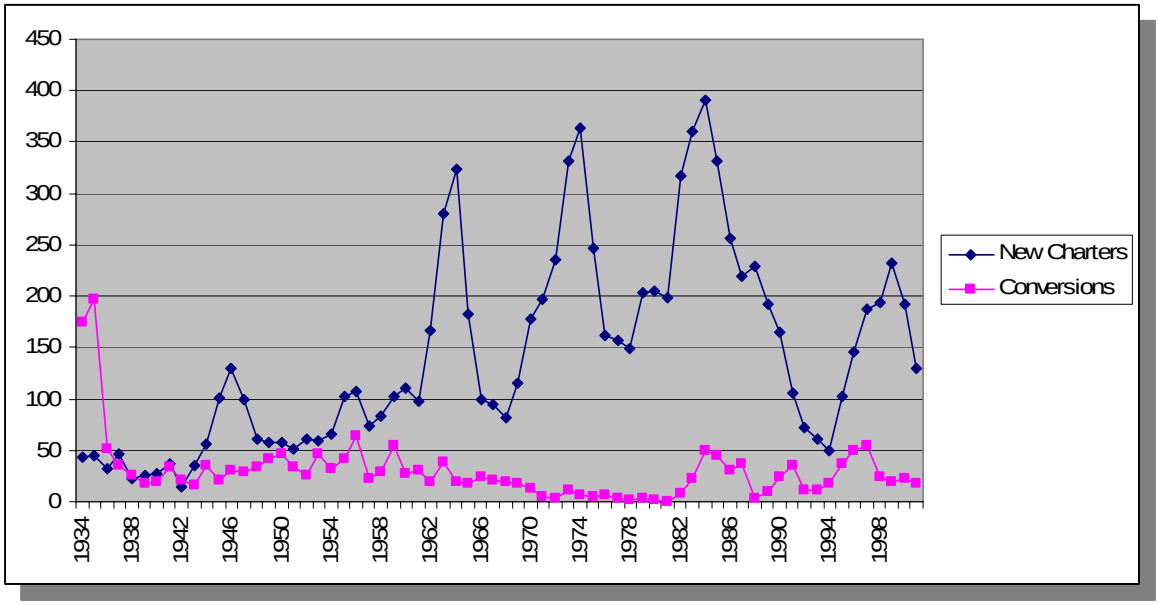
(Source: FDIC)

Structural Change in Commercial Banking

The first structural change highlighted by the literature is consolidation. Consolidation is defined by Lence (1997:373) as a decrease in the number of firms in the industry, along with a simultaneous increase in the average size of continuing firms. Margaret Clarke (2004:929) notes that in 1963, 13,291 U.S. banks operated 13,581 branches, but by 1997, the number of banks fell to 9143 while the number of branches increased to 60,320. David Neff and Paul Ellinger note that from 1984 to 1994 the number of commercial banks declined over 28% from 14,496 to 10,432 (Neff, 1996:

721). Further this study indicates that more than 2,500 bank acquisitions worth approximately $120 billion occurred between 1979 and 1993 (Neff, 1996: 721).

Figure 3 Causes of Increases in Commercial Bank Population, 1934-2001



(Source: FDIC)

Lence (1997:373) found that in the post-1980 period, there was an increase in U.S. bank assets both nominal and real terms. He notes that the value of banking industry assets increased in nominal (real) terms by 130% from 1980 through 1994, with the average bank size increasing in current dollars from 165 million per bank in 1980 to 380 million per bank in 1994 (Lence, 1997: 373). The centralization of capital is a central process proposed by Fligstein in the emergence phase. However, it is obvious that the 1980- 2000 period is hardly the emergence phase of banking and that what Fligstein proposes as emergence phase is typical of the creation of new markets. It can be argued that because of dramatic change in the regulatory policies governing banking that the market as a field had been restructured to allow for the creation of new niches. However these regulatory changes did not just create new niches as they allowed for the entire, once segregated market, to be deregulated and influenced by the tactics of open market competition. Fligstein argue that the centralization of capital, controls competition and leads to the creation of conceptions of control, thereby increasing the firm's chances of survival. In turn, this increases the stability of the market field.

Researchers have also noted that the characteristics of bank consolidations had differential effects on the constituent banks according to their size and demographics. In concern to size, Lence (1997: 373) revealed that the reduction in the number of banks since 1980 can be explained entirely by the decrease in number of small banks (banks with less than $100 million in assets) while medium banks (banks with assets between $100 million and $1 billion) stayed almost unchanged. Over the same period large banks (banks with assets between $1 billion and $10 billion) increased by 25%, and the very large banks (banks with assets of more than $10 billion) almost doubled (Lence, 1997: 373). This difference in growth between firms is disproportionate according to the size of the firms, suggesting that larger incumbent firms would wield more authority than challenger firms in creating new market conceptions of control. This reinforces Fligstein's argument that larger firms would be responsible for creating the conceptions of control which are associated with the emergence phase proposed by Fligstein.

Research conducted by Neff (1996) allows for an understanding of where capital was centralized during the emergence phase. In regard to demographics the average assets of rural and urban U.S. banks were compared by Neff between the years 1987 to 1994. The researchers found that rural banks' average size increased from $48 million assets in 1987 to $71 million assets in 1994. Simultaneously banks in urban areas increased over ten times larger in size from $422 million to $764 million (Neff, 1996: 722).

In regard to mergers, evidence is needed that the aforementioned changes in the banking industry were caused by mergers as opposed to bank failures. Lence (1997:373) notes that this is the case, in that from 1980 to 1994; more than 6000 banks disappeared because of mergers. This is more than four times the number that failed. In addition to the general consolidation trend, some of the largest mergers happened between 1980 and 1994. During this time there were more than one-hundred-and-forty mergers in which both the acquiring firm and the target bank had more than $1 billion in assets (Lence, 1997: 373). However, most of the acquisitions involved small target banking organizations.

Returning to the political-cultural approach, Fligstein argues that national economies can be dominated by the three key groups consisting of capitalists, workers,

and the state. While the U.S. is predominantly a capitalist government coalition[2], it will be necessary to see if the proposed causes of structural changes that have been proposed by the literature are consistent with that of the capitalist-state ideal type proposed by Fligstein. Within the capitalist-state coalition, capitalist are unable to totally dominate the economy and instead, must ally themselves with state officials. This alliance is revealed in the literature and falls into two main categories consisting of economic forces and government action.

Economic forces consist of the idea that observed structural changes might be due to the selfish pursuit of economic gains by some of the interest groups involved in banking, such as stockholders and bank managers. Such gains could be accounted for by higher profits or higher wages (Neff, 1996: 724). The literature can then be further separated into two categories consisting of economic forces driven by stockholders and forces driven by bank manager's interest.

Many studies have attempted direct tests of the general hypothesis that bank stockholder's interests have driven acquisitions and mergers. Rhodes (1994:28) notes that of the 39 studies he examined that were conducted between 1980 through 1993, 50% used the operating performance approach, while the other 50% used the event study approach. Rhodes states that operating performance studies analyze changes in performance from before a merger to after, while event studies analyze stock returns of merging banks relative to returns on a portfolio of stock representing the market (Rhodes, 1994: 28). According to Rhodes (1994:28), operating performance studies consistently find no improvements in cost efficiency or in profitability stemming from bank mergers. Also, such studies find no evidence that horizontal mergers have performance effects different from those of market-extension mergers.[3] Event studies generally find that target firm's stockholders gain, but provide inconsistent evidence regarding either returns to bidders or returns to bidders and targets combined (Rhodes, 1994: 29). The results

[2] The purpose of government in the capitalist state is to contain its common people within a web of delusion which convinces them that they are free in order to hold and reinforce existing forms of economic relations (Parenti, 2002: 314).

[3] Horizontal mergers involve two or more firms that are in direct competition with one another integrating together in order to form one firm, while market-extension mergers involves the combination of two companies that sell the same products in different markets.

from the study led Rhodes to conclude that there is little empirical support for the view that bank mergers result in better performance.

For banking organizations with ownership distributed among numerous small stock holders, there is a potential for managers to pursue their own interests at the expense of the stockholder's interest. Such gains could be accounted for by higher salaries, perks or job security. Hubbard and Palia's (1995) research reveal that this hypothesis is more than a mere speculation as compared to Rhodes analysis. The researcher's study uncovered a stronger pay-performance relation in deregulated interstate banking markets along with a significantly higher manager turnover after deregulation.

Some researchers contend that government action has played a key role in recent trends characterizing the banking industry. The 1980s and early 1990s were characterized by a generalized relaxation of legal restrictions to interstate banking and to intrastate and interstate bank branching. Such deregulation of banking laws might have triggered the trends toward larger banking organizations, mergers, or branch proliferation (Lence, 1997: 386). Claire notes that the liberalization of intrastate banking may have contributed to branching in the banking industry (Claire, 1987: 5). Claire found that the relative number of holding companies as multibank holding companies in a state that liberalized banking laws midway from 1980 through 1993 first increased and then decreased. However, the relative number of holding companies that chose to operate as multibank holding companies in states with restrictive branching laws declined (Claire, 1987: 5). Claire's (1987) study also found evidence that intrastate branching liberalization reduced the number of banking organizations but increased the number of banking offices.

These structural changes within the market field of banking due to mergers and acquisitions can be compared to Fligstein's stability phase. Fligstein contends that the stability phase is characterized by large incumbent firm's starting to pay attention to each other. This is important because a stable market depends upon the social relationships developed by the larger firms. Challenger firms are largely ignored because they pose little threat to the stability of the market since their market share is much smaller. This phase within the market field of banking has largely been typified by the race of firms,

associated with the deregulation of the market, to capture as much of the market as possible. Firms communicated to each other through the accusation of establishments and the mergers of firms as a market was opened up through the process of deregulation. In some ways it seemed to echo the same motto associated with the progressive model of social change, "get big or get out."

Table 3 U.S. Commercial Banks Firms: 1966-2001

U.S. Commercial Banks							
Year	Additions		Deletions			Other Failures	Total Institutions at Year's End
	New Charters	Conversions by Nonbanks	Unassisted Mergers	Failures			
				Distress Mergers	Paid Off		
1934	1,220	740	335	0	9	23	14,146
1935	45	197	153	0	26	84	14,125
1936	32	52	139	22	40	35	13,973
1937	46	36	150	20	50	38	13,797
1938	22	26	72	22	48	42	13,661
1939	26	18	90	20	32	25	13,538
1940	28	20	72	20	19	33	13,442
1941	37	33	45	6	6	25	13,430
1942	15	21	63	13	6	37	13,347
1943	36	16	76	1	4	44	13,274
1944	56	35	66	1	1	29	13,268
1945	101	21	72	0	0	16	13,302
1946	130	31	88	1	0	15	13,359
1947	99	29	74	3	0	7	13,403
1948	61	34	69	2	0	8	13,419
1949	58	41	73	4	0	5	13,436
1950	58	47	84	4	0	7	13,446
1951	51	34	70	2	0	4	13,455
1952	61	26	93	2	0	8	13,439
1953	59	46	108	1	0	3	13,432
1954	66	32	201	2	0	4	13,323
1955	103	41	221	1	4	4	13,237
1956	107	64	183	0	1	6	13,218
1957	73	22	147	0	1	0	13,165
1958	83	29	146	1	3	3	13,124
1959	102	54	163	0	2	1	13,114
1960	111	27	126	0	0	0	13,126
1961	98	31	135	0	5	0	13,115
1962	167	20	176	0	1	1	13,124

1963	281	39	150	0	2	1	13,291
1964	323	20	133	0	7	1	13,493
1965	182	17	140	0	5	3	13,544
1966	99	24	121	6	1	1	13,538
1967	94	21	131	0	4	4	13,514
1968	82	19	125	3	0	0	13,487
1969	115	18	138	5	4	0	13,473
1970	178	13	146	2	4	1	13,511
1971	197	5	95	1	5	0	13,612
1972	236	4	118	0	1	0	13,733
1973	332	11	94	3	3	0	13,976
1974	364	6	113	3	0	0	14,230
1975	246	5	84	10	3	0	14,384
1976	161	6	125	13	3	0	14,410
1977	157	3	152	6	0	1	14,411
1978	149	2	165	5	1	0	14,391
1979	204	3	224	7	3	0	14,364
1980	205	1	126	7	3	0	14,434
1981	198	0	210	5	2	1	14,414
1982	317	8	256	25	7	0	14,451
1983	361	22	314	33	12	6	14,469
1984	391	49	330	62	16	5	14,496
1985	331	45	336	87	29	3	14,417
1986	257	31	341	101	40	13	14,210
1987	219	37	543	136	50	14	13,723
1988	229	3	598	173	36	11	13,137
1989	192	9	411	175	31	6	12,715
1990	165	24	393	141	17	6	12,347
1991	106	35	447	85	20	9	11,927
1992	72	11	428	73	25	18	11,466
1993	61	12	481	35	27	36	10,960
1994	50	17	548	11	0	16	10,452
1995	102	37	609	6	0	34	9,942
1996	145	49	554	5	0	47	9,530
1997	188	55	601	1	0	28	9,143
1998	194	24	564	3	0	20	8,774
1999	232	20	422	6	0	17	8,581
2000	192	23	456	6	0	19	8,315
2001	129	17	360	3	0	18	8,080

CHAPTER 4 - Factors Effecting the Location of Financial Establishments in Non-Metro Counties within the United States

The previous chapter focused on the changes in the regulations controlling the commercial banking industry and the resulting rise of new structures as firms created new conceptions of control in response to the changes in the market field created by deregulation. While there was considerable attention paid to the rise of these structures little attention has been given to the increase in the number of commercial banking establishment that has taken place in recent years. It is the purpose of this chapter to come to an understanding of some of the key factors that would affect the location of these new commercial banking establishments, with a specific focus on the nonmetropolitan U.S.

Banks and the Community

In the book The Bank Merger Wave, Gary Dymski (1999) defines financial institutions as consisting of two elements: the local financial infrastructures that meet the demand of households and businesses for credit and for the means of making monetary transactions; and the pattern of credit flows, that is, the level of capital and credit demanded and obtained by different segments of the household and business sectors (Dymski, 1999: p.8). Two broad lines of debate have erupted into how these two elements fit together and how the local financial structure creates and channels patterns of credit flows. These two different schools consist of the Currency and Banking Schools.

In the Currency School view, credit is a passive and residual category in economic dynamics; by extension, so too are institutions that specialize in the creation of credit (Dymski, 1999: p.8). The volume of money is exogenous and fixed; businesses and households will adjust price levels to accommodate whatever volume is in circulation. In the Banking School view, credit is an active force in economic dynamics, the volume of which is endogenous (Dymski, 1999: p.8). The volumes of credit and money can be

"wrong," in aggregate for individual units, given the level of income and of prices. Dymski notes that in this event, individual agents may have to make do with less credit than they deserve and the local economy as a whole may suffer a turndown (Dymski, 1999: p.8).

The Currency and Banking Schools take opposite sides in the continuing debate over whether financial markets should be viewed as largely efficient or inefficient. Dymski notes that according to the Currency Schools view, financial markets are characteristically efficient in that individuals exploit all available information in deciding whether to buy or sell financial assets (Dymski, 1999: p.8). Since financial assets are used to provide credit or capital for firms, this means that the price of credit or capital for all firms is efficiently priced by the market. The efficient-market view ascribes so much efficiency to the markets that banks only have a minor role in credit allocation. This is to state that if commercial banks did not exist but financial markets were efficient, then every one of the efficient loans that banks would have made would be made anyway by nonblank entities.

In the Banking School view, financial-market outcomes are less than perfect because the environment in which credit and capital-market instruments are exchanged is flawed (Dymski, 1999: p.8). These flaws typically begin with damaged information in that information could be asymmetrically distributed between borrower and lenders or information about future outcomes may be unavailable or unreliable. Either way, no single individual can know all options, but rather must make economic choices with limited knowledge.

For the thesis I will be adopting the Banking school perspective, which argues that commercial banks are not disembodied institutions that select ready, willingly, and able borrowers from among applicants with readily ascertained creditworthiness; instead, commercial banks are institutions engaged in co-evolution with market areas and market participants they may or may not service. Further, that market environments are shaped by bank decisions just as bank decisions are conditioned on signals emitted by market environments. This means that the bank's evolution is determined in part by the trajectory of the banking industry as a whole, but also by that of the community environment it services and from which it derives profit. Further, because of the specific characteristics

of a community there may be conditions present that will allow for the presence for a higher number of banks (niches or growth nodes) within a community than would normally be supported by local businesses and population.

Modern Theory of Capital and Banking

Marx states that "the wealth of societies in which the capitalist mode of production prevails appears as an 'immense collection of commodities'" and therefore starts his investigation with the commodity (Marx, 1977: p.125). Marx defines a commodity as an object of use that meets human needs of some type (Marx, 1977: p.125). Marx also notes that a commodity can also be viewed as a unit of economic output produced for the purpose of exchange (Marx, 1977: p.125).

Marx purposely makes this distinction to point out that a single unit of a commodity embodies two distinct characteristics use value and exchange value. Marx notes that the use value of a commodity resides within the usefulness of the object and is determined by the physical property of the object itself (Marx, 1977: p.126). That is to say that the use value of one commodity can only be compared to the use value of another commodity by the quality of the two commodities. Therefore, their differentiation in terms of use value is qualitatively determined (Marx, 1977: p. 128). Further, a commodity can be exchanged for another commodity with different use values. Once these commodities enter within an exchange relationship, one use value is then exchanged for a commodity of a different use value, so long that it is present in the same quantity (Marx, 1977: p. 128). Therefore, their differentiation in terms of exchange value is quantitative (Marx, 1977: p. 127-128). This leaves only one property of a single unit of a commodity in that it is the product of human labor (Marx, 1977: p. 128). Marx notes that commodities have value because of the exertion of human labor that is congealed within the commodity (Marx, 1977: p. 129). The magnitude of this value must then be measured by the amount of labor expended by an individual into a commodity.

What Marx earlier stated as a process which produces an 'immense collection of commodities' will be laid bare as a process which produces an immense accumulation of surplus value and ultimately wealth into the hands of the capitalist who own the means of production (Marx, 1977: p. 644). The only worker that is productive to the capitalist is

one who produces surplus value (Marx, 1977: p. 644). To understand where the wealth of a capitalist society originates it is important to understand what surplus value is and how it is created by the exploitation of the workers' labor power by the capitalist to produce commodities during the working day. Marx defines surplus value as the value produced by a worker beyond the value that worker is paid in wages for the purposes of maintaining and reproducing the worker for another day's labor (Marx, 1977: p.251).

Capital Accumulation and the Bank

Marx argues that the accumulation of capital is a continuous process in which the same phases, where an additional increment of surplus value is created, are continually completed in succession. In order to understand how the continuous process of accumulation is accomplished it is necessary to look into what Marx calls the circuits of capital.

Before the circuits of capital are discussed, it is necessary to understand the role that money plays in the process of exchange. Marx notes that money was created and served as the universal equivalent in which all commodities are expressed socially (Marx, 1977: p. 181). Marx also notes that money itself is a commodity which functions as a measure of value and also the medium of circulation in the exchange of commodities (Marx, 1977: p. 184). Marx insists that to understand the distinction between money as money and money as capital is nothing more than to understand the difference in their form of circulation (Marx, 1977: p. 247). For Marx the process of circulation is the process of exchange and is noted as the circulation of commodities (Marx, 1977: p. 247).

Money as money can be expressed in the (C-M-C) form of circulation, which Marx calls the simple circulation of commodities (Marx, 1977: p. 249). Where C is the commodity and M is money. This form of circulation represents the transformation of commodities into money (C-M) and the re-conversion of money back into commodities (M-C) (Marx, 1977: p. 247). Money as capital can be expressed in the (M-C-M) form of circulation, which Marx calls the circulation of money as capital (Marx, 1977: p. 255). This form of circulation represents the transformation of money into commodities (M-C)

and the re-conversion of commodities back into the money form (C-M) (Marx, 1977: p. 248).

What distinguishes these two forms of circulation is how the process ends. In the C-M-C form the last transaction is constituted by a purchase and the consumption or use of that purchase to satisfy the individuals needs (Marx, 1977: p. 249, 250). Under this form of circulation there is no need for the individual to proceed with any further transactions unless there is a need to fulfill another particular need.

Under the M-C-M form of circulation the last transaction is a sell. That is the individual started out with the same use value as they started out with, money. This money does not have any qualitative difference in what the individual started then what they have received after the process of circulation was completed (Marx, 1977: p. 249). Therefore the motivating factor of the M-C-M form of circulation is not qualitative in nature but quantitative in nature (Marx, 1977: p. 251).

Money as Capital form of circulation goes through three separate stages. The first stage consists of the capitalist appearing on the market as a buyer where his money is transformed into commodities and goes through the transaction of (M-C) (Marx, 1977: p. 252). The second stage consists of the productive consumption of the commodities by the capitalist with end product consisting of a greater value than the elements of production. The third stage consists of the capitalist returning to the market as a seller where his commodities are transformed into money and goes through the transaction of (C-M') (Marx, 1977: p. 252). Within this process the original sum that was advanced (M-C) is received back through the process with an additional increment over the original value (C-M'). Marx calls this additional increment surplus value (Marx, 1977: p. 251). Marx notes the complete form of this process as (M-C-M'), with M' is the original sum plus the increment (Marx, 1977: p. 251).

Further under the (M-C-M') form of circulation the original intention of the process is never met unless the commodities can be sold at a sufficient price. The whole intention of entering into the process of circulation was to make more money. The capitalist is left with an additional increment of money in which to start the whole process of circulation over again. Marx calls the realization of surplus value through the circulation of commodities valorization (Marx, 1977: p. 252). The money as capital form

of circulation is completed over and over again with each (C-M') transaction producing an increase in additional capital or money. Therefore the general formula for the accumulation of capital can be noted a continuous cycle of the (M-C-M') or (M-M') (Marx, 1977: p. 257).

Marx notes that the entire banking industry is based on fictitious capital. The formation of fictitious capital is known as capitalization, which is the creation of surplus capital by interest charged on the capital lent out to individuals. Moreover, it is based not on the meager fictitious capital owned by the banks, but on that of the business entities and the general public that is deposited with them (Marx, 1981: p.594). Given this necessity it would appear that locations with larger human populations and greater numbers of business firms would provide more desirable locations for banking firms to locate and establish operations.

Industrial Location Theory

Marx notes that the financial industry is invested in two entities -- that of businesses and the general public which deposits within them. Because bank establishments facilitate the transactions between and among these two entities I will now turn to the theories of industrial location to better understand the growth of financial establishments in conjunction with industrial growth in the context of a capitalist market economy. Gary Green (1987:31) notes that banks often encourage horizontal and vertical mergers to reduce their risks. By encouraging the expansion of production through the provision of credit, banks encourage firms to take larger shares of their market.

Scott (1988) outlines three trends in the relocation of American industry as related to patterns of urbanization. First, there has been a shift outward of economic activity from core urban areas to suburban rings. Second, there has been a shift of economic activity downward through the urban hierarchy; that is, industry has increasingly decentralized and relocated from the largest metropolitan areas to smaller metropolitan areas and nonmetropolitan cities. Third there has been a shift of economic activity from older industrialized regions to newer industrialized regions. The theory of regional

development advanced by Storper and Walker (1989) helps provide an understanding of the spatial shift of firms across regions.

In their book, The Capitalist Imperative, Storper and Walker (1989) give an analysis of a spatial growth of industries within a capitalist society. What is unique about spatial development under capitalism is that it is carried out by individuals and private firms employing wage and salary workers, acting under conditions of generalized market exchange and the spur of competition. Storper and Walker argue that it is the development dynamic of capitalist industrialization, not the allocative functions of its markets, which drives geographically uneven development in capitalist societies (Storper and Walker, 1989: p.8)

Capitalist societies tend to be spatially expansionist in the same sense that they are economically expansionist. They produce new industries with some regularity and these tend to invade new places and form growth centers where none exist. As these new industries reorganize and decentralize, they may, in turn, create new growth peripheries in relatively undeveloped areas. The creation of growth centers and peripheries, and the obsolescence of older industrial places, leads cities to undergo differential growth, and alter the configuration of city systems.

Storper and Walker propose a model of capitalist growth that is based on three essentials: accumulation or investment, strong competition, and technological change (Storper and Walker, 1989: p.33) Marx notes that capital circulates in a different way from ordinary commodities (Marx, 1981: p.594). That is, capital begins not as a commodity in search of a market, but as money placed into circulation with the desire to make a profit. Therefore, capital is invested. While profit can be made off financial and commercial transactions, the principal means of deriving profit in an industrial economy is through production. Investment is a critical moment in the circuit of capital, as it initiates new rounds of production. Further, investment can be viewed as a form of consumption by capitalists involving the purchase of productive equipment, materials, and labor.

Competition is the search for advantage by one firm over another. It is a basic characteristic of capitalism, given its organization into units of private property, the profit motive and drive for expansion. Therefore it is a fundamental condition underlying the

growth of the economy. Storper and Walker note two forms of competition consisting of weak competition and strong competition. Weak competition operates in the realm of circulation and results in adjustments toward equilibrium (Storper and Walker, 1989: p.33). Through weak competition firms search for an advantage in commodity markets by: seeking market share by under pricing and by enticing consumers; acquiring the best price on materials from suppliers; and, securing the best labor at the lowest wage.

Storper and Walker emphasize strong competition tactics over weak competition. Strong competition prompts capitalists to revolutionize production in order to gain an edge on competitors, pushing the economy to grow and keeping it from ever settling into equilibrium (Storper and Walker, 1989: p.48). Through this perspective firms do not just adjust to market conditions and stick to competitive standards, they struggle with one another in fierce competition, where a firm that falls behind another may perish.

Technology refers to the general capabilities of human society to transform nature into useful products for human consumption (Storper and Walker, 1989: p.50). Technological change generates economic growth by altering both processes and products. Process alterations are generally intended to increase the output generated by a given quantity of inputs. Product alterations increase the range and quality of goods and services available. Taken together, strong competition and technical change generate surplus profits for the fortunate and decrease profits for the less fortunate. Strong competition locks competing firms into a vicious cycle of growth and expansion at all cost (Storper and Walker, 1989: p.52). The value of this cycle is to stress growth and development over static allocations of resources in the process of industrialization.

Technology also provides industries with the means for greater expansion. For example, developments in information technologies and telecommunication have allowed for the decentralization of firms in a variety of industries. Moreover, the general ease of modern communication actually facilitates growth of the functions basic to the centralization of cities, by making possible larger multinational corporations, bigger banking networks, and more international securities transactions (Storper and Walker, 1989: p.197). In *Central Places in Southern Germany,* Christaller (1966) argued that business located along transportation routes. This argument applies to banking as well. However, while businesses require the proximity to transportation routes, contemporary

banks will also need telecommunication to send and receive the vital information needed to operate in remote locations. The Internet and the "digital highways" created by telecommunication networks create a different logic when considering the location of banks in nonmetropolitan areas.

Taking into consideration the proposed model of capitalist growth that is based on three essentials, accumulation or investment, strong competition, and technological change, Storper and Walker propose a theory of geographical industrialization that focuses on the spatial dynamics of industry growth. This theory argues that basic patterns of industry location and regional growth can be produced by processes endogenous to capitalist industrialization rather than exogenous placement of resources and consumers (Storper and Walker, 1989: p.71). This is to state that industries produce economic space rather than being hostage to the pre-existing spatial distribution of suppliers and buyers.

This theory is organized around four basic locational patterns of industries: localization, clustering, dispersal, and shifting centers. Localization occurs after an outward expansion by firms and new industries arise at several points away from older industrial areas. Storper and Walker argue against the traditional view of Weberian location theory in that industries are capable of generating their own conditions of growth in place by making factors of production come to them or causing factor supplies to come into being where they did not exist before (Storper and Walker, 1989: p.71). This is the idea that capitalism is capable of escaping from the past to create new localizations of industry. This does not mean that the peripheral locations are cheaper sites for production, because the same conditions of underdevelopment that make labor or land inexpensive generally make them less productive in use. Storper and Walker note that every industry has certain locational specifications which are comprised of certain kinds of input-output relations such as labor, natural resources, and consumers (Storper and Walker, 1989: p.75).

Because of these differences in specifications certain regions may receive a certain advantage over others. It is for this reason that clustering occurs. Clustering is when one startup area surges ahead while others decline or grow more slowly. Growth can focus around almost any outpost of a new industry, but eventually certain growth centers gain competitive advantage over more scattered producers (Storper and Walker,

1989: p.76). Over time this advantage over other locations increases with increasing returns. When some places get far enough ahead, the window of opportunity for others to locate closes shut.

When these new areas have fully established themselves dispersal occurs where these growth peripheries of the new industry arise away from the core territory of the new industry. The reason for establishing these new peripheries depends on the exact conditions of growth in any sector, which change over time. Further these expansive peripheries represent an extension of the successful industry and its firms into new territories to capture new markets and to eliminate competitors who have not made the same innovations. Storper and Walker note that in time, these peripheries may grow to the extent that there is a shifting of the center, where a new centers of the industry rises up to challenge the old (Storper and Walker, 1989: p.90). At this point, the growth advantage of the newly established region has placed it back in the position of locational freedom where the cycle can start anew.[4]

The insight provided by Storper and Walker concerning the inconsistent geography of industrial growth is important in concern to the relationship between financial services and businesses as both moves into new territories. It is for this reason that my analysis of commercial banking establishment location must account for factors that provide insight into the characteristics of these new growth peripheries and not just rely on the association of contact with established metropolitan areas. Banks do not operate like the typical business with inputs and outputs, but instead represent a facilitator between business establishments and individuals. While industrial location theory does not specifically address the bank's role in this relationship it does provide a starting point for the identification of factors that can drive bank establishment growth in nonmetropolitan areas of the U.S.

[4] This process of dispersal and clustering allows for new urban centers to develop in nonmetropolitan locations. This model represents an economic model of urbanization and is one of four models consisting of, interactional, normative and demographic. More information on this debate can be found in *The State of Urbanization,* by Charles Tilly (1967).

Bank Loyalty

I propose that environment also plays a key element in the survival of challenger firms in that among non-metropolitan areas the social institutions associated with a city can provide the necessary conditions for the support of challenger firms. For this reason I turn to an article that was published before the deregulation of the banking industry. In their article Anderson, Cox and Fulcher examine the relative importance of personal decision factors in selecting a bank (Anderson, 1976: 40). This research determined that bank customers tend to be quite loyal to their bank after selection. Thus, the nature of the consumer-bank relationship encourages loyalty.

This creation of loyalty was noted in several different ways. First, is that the consumer must open an account to utilize most bank services, which limits the consumer's use of alternate banks. Further, the time and effort involved in opening and closing bank accounts discourages switching from one bank to another (Anderson, 1976: 45). The researchers found that 75% of the respondents had never changed banks for reasons other than changing residence (Anderson, 1976: 45). This statistic also means that only 25% of the respondents would change banks independent of changing their residence. Because the bank customer is so loyal, it is difficult for banks to attract new customers from existing residents. Thus, new residents are generally the major source of additional prospective bank customers.

This would mean that within non-metropolitan areas, where the dominant customer base for banks is characterized by new resident consumers, it should be expected that new banks would arise in order to fill this competitive niche. Examples of non-metropolitan areas that are characterized by the constant creation of new residents would be nonmetropolitan cities and towns which have universities and community colleges, military bases, or represent retirement destinations. The characteristics of these towns would create a niche environment that would allow banks to capture consumer loyalty in an atmosphere that is fueled by a continuous migration pattern. This migratory characteristic would increase competition and provide the support needed by smaller challenger firms while at the same time, not presenting enough profit motivation to raise the interest of larger incumbent firms.

In their article Fry, Shaw, Lanzenauer, and Dipchand sent out a questionnaire to graduate students in order to obtain information on consumer bank loyalty before, during and after college (Fry et al. 1973: p. 518). The researchers grouped their findings into three sections. The first section was devoted to measurement of loyalty by tracking patronage from parents' choice of bank through the three periods to the present. The researchers found that parent's bank choice had a significant effect in determining the bank used by students (Fry et al. 1973: p. 519). However, even if the students changed banks during college, they remained loyal to the bank that they graduated with and continued the account after moving to a new destination.

The second section deals with the effects on patronage of a campus branch location and of loans to students. The researchers found that the opening of a campus branch had a significant effect, in that the bank received a much higher share of business among graduates in the year after graduation than they previously had received (Fry et al. 1973: p. 520). Further it was determined that having a student loan increased the probability of a student establishing an account at the bank following graduation (Fry et al. 1973: p. 518).

The third section attempted to explain varying degrees of loyalty through analysis of bank systems, mobility, account status, and other variables. The researchers found a negative effect between account status and bank loyalty, in that students were likely to switch banks if they had a poor account status with a local bank (Fry et al. 1973: p. 523). The researchers believed that this switch was an effort to "wipe the slate clean" upon moving to a new location.

One implication of this research is the hypothesis that non-metropolitan areas characterized by a steady stream of new respondents, such as college towns, would be more likely to attract new banking establishments.

CHAPTER 5 - Statement of Hypotheses

While the literature fails to specifically address the location of banking establishments, previous research does suggest a variety of factors that could influence the development of financial establishments in the nonmetropolitan U.S. There is a consensus among the literature regarding the association of both businesses and population as having a positive association to the concentration and of financial establishments. For the purposes of this study, the main factors viewed as influencing the development and concentration of financial establishments was classified into three categories: spatial characteristics, labor force and population characteristics, availability of financial resources, and business establishment characteristics.

Spatial Characteristics

The research literature indicates that over the past decades, shifts in where industries have located have influenced urbanization processes in the Unites States. Scott (1988) outlines three trends in the relocation of American industry as related to patterns of urbanization. First, there has been a shift outward of economic activity from core areas to suburban rings. Second, there has a shift of economic activity downward through the urban hierarchy; that is, industry has increasingly decentralized and relocated from the largest metropolitan areas to smaller metropolitan and nonmetropolitan cities. Third there has been a shift of economic activity from older industrialized regions to newer industrialized regions. These trends suggest that both the size of an urban settlement and the proximity of the region to a larger metropolitan population would both be important factors influencing the location of financial services. Therefore, it is expected that the concentration of banking establishments in the nonmetropolitan U.S. should occur in locations adjacent to metropolitan areas and smaller urban locations.

H_1: Under the condition of being located in a non-metropolitan setting, areas adjacency to metropolitan areas should be associated with a higher concentration of banking establishments.

H_2: Under the condition of being located in a non-metropolitan setting, possessing a larger population should be associated with a higher concentration of banking establishments.

Storper and Walker note that capitalist societies tend to be spatially expansionist in the same sense that they are economically expansionist. They produce new industries with some regularity and these tend to invade new places and form growth centers where none exist. As these new industries reorganize and decentralize, they may, in turn, create new growth peripheries in relatively undeveloped areas. These new growth centers will be accompanied by a growth in the population as individuals move into the new territory to acquire employment. Because these undeveloped areas may not be associated with larger metropolitan areas there will be a need to account for this sporadic growth.

I argue that the growth of new housing establishments is an indicator of the growth of these new underdeveloped areas that are not spatially associated with metropolitan areas. Further, evidence also suggests that the growth of banking establishments is also associated with the real-estate loans provided by smaller commercial banks. Valerie Bauerlein, of the Wall Street Journal (2007) writes that, many small banks rely heavily on commercial real-estate loans. This leads to the following hypothesis:

H_3: Under the condition of being located in a non-metropolitan setting, a higher prevalence of new housing construction should be associated with a higher concentration of banking establishments.

Labor Force and Population Characteristics

As noted by Marx (1981) the entire banking industry is based on fictitious capital. The formation of fictitious capital is known as capitalization, which is the creation of surplus capital by interest charged on the capital lent out to individuals. Moreover, it is based not on the meager fictitious capital owned by the banks, but on that of the business

entities and the general public that is deposited with them (Marx, 1981: p.594). Marx states that financial industries require individuals to invest and create surplus value. Moreover, they require individuals that will pay back the capital lent and the interest charged for the lent capital.

Such characteristics may be found not only in the monetary value that the individual possesses, but also in the education obtained by the individual. These prerequisite require that an individual has gained enough education to receive a job that warrants a high enough salary to be perceived by the financial establishment as being worthy of a loan. It's also based on the assumption that the individual has the means to pay back on the loan and interest. It is for this reason that the characteristics of the individuals inhabiting a nonmetropolitan location should affect the location of financial establishments.

H_4: Under the condition of being located in a non-metropolitan setting, a higher percent of highly educated workers should be associated with a higher concentration of banking establishments.

H_5: Under the condition of being located in a non-metropolitan setting, areas with a higher percent of the unemployed population should be associated with a lower concentration of financial establishments.

Storper and Walker (1989) note that when an industry is looking for a new location in which to establish a presence, it is constrained to certain locations by what are called locational capabilities. Locational capabilities refer to the capacity of firm to secure what it needs, specifically labor, suppliers and buyers. As noted by Birch (1987) the need for qualified labor is an important factor influencing the location of industry.

The research literature suggests that in general, financial industries require knowledge workers for both highly skilled managerial and technical work tasks, and lower skilled clerical work tasks involving the creation, processing, and communication of information and knowledge relevant to the industry. Given that financial establishments require workers with specialized knowledge, it can logically be argued

that the need for highly trained, knowledge workers would be an important factor influencing where concentrations of commercial banking establishment develop. These occupations would include financial managers, financial specialist, and financial clerks.

H_6: Under the condition of being located in a non-metropolitan setting, a higher percent of the labor force employed in financial manager occupations should be associated with a higher concentration of banking establishments.

H_7: Under the condition of being located in a non-metropolitan setting, a higher percent of the labor force employed in financial specialist occupations should be associated with a higher concentration of banking establishments.

H_8: Under the condition of being located in a non-metropolitan setting, a higher percent of the labor force employed in financial clerk occupations should be associated with a higher concentration of banking establishments.

Availability of Financial Resources

The financial worth of an individual can be evaluated in two different ways – income and wealth. Income refers to the money received from one's job (i.e., earnings) plus additional money accrued from other financial investments (e.g. savings accounts, stocks, bonds), which includes interest income. Wealth refers to the monetary value of all assets, financial and otherwise, owned by the individual. In general, individuals who earn more additional income from sources other than their job (e.g. interest income) are those with high levels of wealth. Two indicators were used to measure the availability of financial resources, consisting of the average and percent of income. The average amount of income was used to measure the level of income per household in a county, while the percent was used to measure strength of presence of households with interest income, dividends, or net rental income. Therefore, it can be logically argued that the level of availability of income and wealth would affect the location of banking establishments.

H_9: Under the condition of being located in a non-metropolitan setting, a higher average interest income per household should be associated with a higher concentration of banking establishments.

H_{10}: Under the condition of being located in a non-metropolitan setting, a higher average of earnings per household should be associated with a higher concentration of banking establishments.

H_{11}: Under the condition of being located in a non-metropolitan setting, a higher average retirement savings per elderly household should be associated with a higher concentration of banking establishments.

H_{12}: Under the condition of being located in a non-metropolitan setting, a higher percent of the population with interest income should be associated with a higher concentration of banking establishments.

H_{13}: Under the condition of being located in a non-metropolitan setting, a higher percent of the population with earnings income should be associated with a higher concentration of banking establishments.

H_{14}: Under the condition of being located in a non-metropolitan setting, a higher percent of the population with retirement savings should be associated with a higher concentration of financial establishments.

Business Establishment Characteristics

As previously noted, Marx argued that financial industries require individuals to invest and create surplus value. This investment is not limited to individuals, but also to the number of establishments that make up the population. These businesses represent a potential business market for banks. It can logically be argued that the larger the amount

of business establishments in a county the greater the potential business market for banks. This leads to the following hypotheses:

H_{15}: Under the condition of being located in a non-metropolitan setting, possessing a larger number of business establishments should be associated with a higher concentration of banking establishments.

The literature also provides information concerning the association between universities and financial establishments. Universities can be seen as filling two requirements beneficial to the location of financial establishments. First, as previously discussed, they produce educated individuals. These individuals are perceived as desirable prospective customers by financial establishments in that they have gained the certification of a recognized institution and are capable of attaining higher salary positions in the work force. Second, the presence of college students also provides the opportunity for expanding a bank's customer base and generates customer loyalty, in addition to generating student loans. This logic leads to the following Hypothesis:

H_{16}: Under the condition of being located in a non-metropolitan setting, the presence of a university should be associated with a higher concentration of banking establishments.

As previously noted locational capabilities refer to the capacity of a firm to secure what it needs, specifically labor, input suppliers and buyers. In regard to input suppliers and buyers, every distinct industry in the economy has certain commodity inputs and output conditions to meet. In regard to banking establishments this could involve the outsourcing of specialized jobs that require unique technical knowledge, in particular, computer software programming, equipment repair and technical support, and telecommunications are critical to the operation of banks. Expertise in these areas is critical for financial accounting and recordkeeping, managing investments, and keeping financial transactions and information secure. Therefore, it is expected that the presence of expertise in software, electronic equipment repair, and telecommunications should influence where commercial banking establishments concentrate.

H_{17}: Under the condition of being located in a non-metropolitan setting, areas with a higher number of business establishments accounted for by software firms should be associated with a higher concentration of banking establishments.

H_{18}: Under the condition of being located in a non-metropolitan setting, areas with a higher number of business establishments accounted for by electronic equipment repair firms should be associated with a higher concentration of banking establishments.

H_{19}: Under the condition of being located in a non-metropolitan setting, areas with a higher number of business establishments accounted for by telecommunication firms should be associated with a higher concentration of banking establishments.

In the following chapters, the nineteen hypothesis outlined in this section will be empirically tested in order to identify factors that have influenced the concentration of financial establishments in nonmetropolitan counties across the United States during the 2000-2003 period.

CHAPTER 6 - Research Methods

This empirical analysis differs from earlier work on financial services industries in several ways. First, it focuses on testing and identifying a set of variables influencing the spatial concentration of banking establishments in the nonmetropolitan U.S. Second, it uses a more comprehensive database, which is national, rather than regional in scope. In order to test the study hypothesis, a panel data set was constructed for the years 2000 and 2003 from data that were drawn from the *U.S. Census of Population and Housing* and *County Business Patterns*.

Unit of Analysis

National level data conceal substantial variation in the development of banking institutions across different contexts in the United States. The examination of such variation requires a geographic unit of analysis which delineates the spatial structure of local economic activity. In this study, counties serve as the unit of analysis in the database to approximate this spatial structure.

One problem with using counties in a panel study is that the number of counties in the United States may have changed in the time period due to district restructuring. If the counties were split in the time period, I recombined them so as to make the units equal in comparison. If counties were combined then I combined the other counties so as to make equal units for comparison. If any counties were redrawn, I dropped those counties from the data set since there is no way to make units of equal comparison. These methods produced a sample of 2023 nonmetropolitan counties.

Measurement of Dependent Variable Financial Services Concentration and the Identification of Commercial Banking Growth Nodes in Nonmetropolitan Counties

The level of concentration of banking establishments within a county will be measured by a location quotient for commercial banking establishments. The location quotient is a ratio that measures the relative amount of financial services establishments

within the economy of a county compared to the national economy. It will be calculated as follows:

$$LQ = \frac{\frac{\text{Number of Banking Establishments, County}}{\text{Total Number of Establishment, County}} * 100}{\frac{\text{Number of Banking Establishments, Nation}}{\text{Total Number of Establishment, Nation}} * 100}$$

Location quotients for financial service establishments will be calculated for the years 2000 and 2003. For this project, 2000 data were chosen because of a change in *County Business Patterns* data coding from the Standard Industrial Classification (SIC) to the National American Industrial Classification System (NAICS) in 1997 which renders all data before 1997 incomparable with data after 1997. The 2000 County Business Patterns data were also chosen so that additional data sets, such as the 2000 Census data, could be used for identification and collection of independent variables. Selecting the base starting point in 2000 allows for the addition of many different data sets to be incorporated into the analysis. The 2003 data were chosen because it was the latest completed data set in the County Business Patterns series.

The listings for banks in the U.S. Census are classified by *County Business Patterns* under the NAICS code of 5221. The U.S. Census defines banks, or depository credit intermediation, as an industry comprising of establishments primarily engaged in accepting demand and other deposits and making commercial, industrial, and consumer loans (U.S. Census, 2004). Banks are comprised of four higher level NAICS codes which include Commercial Banking (NAICS code 52211), Savings Institutions (NAICS code 52212), Credit Unions (NAICS code 52213), and Other Depository Credit Intermediation (NAICS code 52214).

As indicated by the formula, the location quotient measures the representation of banking establishments in a county relative to the national level. With this formula a county would have a location quotient (LQ) of 1.0 if the county had the same proportional representation of banking establishments compared to the national economy.

Counties with LQ's greater than 1.0 have over-representation in banking and counties less than 1.0 exhibit under-representation.

Richard Goe (2002:422) proposes the term nonmetropolitan growth node to refer to nonmetropolitan areas containing a greater than average concentration of employment within a particular industry sector in relation to other nonmetropolitan areas. I will use the same term to refer to nonmetropolitan areas in concern to establishments instead of employment.

Further, Goe (2002:422) uses three criteria to determine whether or not a county is considered a growth node in relation to a particular sector of the economy. Goe designates a nonmetropolitan county as a growth node if it (1) had an LQ greater than 1.0 at the base year of the time frame being studied; (2) had experienced an increase in the LQ over the time frame examined; and, (3) had experienced a net gain of industry employment that was at least one-third of the median increase in total nonmetropolitan employment (Goe, 2002: 428).

Given that my thesis deals with establishments, I will adopt the following criteria to identify a growth node in nonmetropolitan banking establishments: (1) A county must display a LQ greater than 1.0 for its number of commercial banking establishments in 2000; (2) the county must also have experienced an increase in its LQ over the 2000 to 2003 period; and, (3) the county must also have experienced a net gain of at least one banking establishment over this time period. Whether or not a nonmetropolitan county represents a growth node in commercial banking will be measured as a binary variable. All counties that meet these criteria will be assigned a 1 for a growth node and all others will be given a zero. With these criteria, a growth node is a non-metropolitan county with a higher than average concentration of commercial banking establishments in 2000, that experienced an increase in concentration during the 2000-2003 period due to the location of 1 or more banking establishments.

Measurement of Independent Variables

Control Variable

In order to control for potential unmeasured differences across regions of the U.S., region was used as a control variable. Binary variables were created to represent 8

of the 9 regional divisions designated by the U.S. Census Bureau.[5] Division two, which contains New Jersey, New York, and Pennsylvania, was assigned as the reference category. Each nonmetropolitan county was assigned a 1 for the binary variable representing the regional division in which it was located. It was then assigned a 0 for the remaining seven binary variables. Counties located in Division 2 were assigned a 0 for all eight binary variables.

Spatial Characteristics

Spatial characteristics were measured by a series of three independent variables. The first measured whether or not a nonmetropolitan county was adjacent to a metropolitan area. The second measured the population size. Finally, the third variable measured the prevalence of new housing as an indicator of county growth.

A county was operationalized as being suburban based upon the Beale Code. The Beale Code is a nine point scale for classifying counties on the basis of population size and metropolitan/nonmetropolitan status. At one end, the first point on the scale indicates that a county is a "central" county in one of the largest metropolitan statistical areas in the U.S. At the other end, the ninth point indicates that a county is rural and is among the smallest nonmetropolitan counties in terms of population. A county was operationalized as being a nonmetropolitan county based upon the Beale Code. Nonmetropolitan adjacency was then measured as a binary variable. A nonmetropolitan county was assigned a 1 if it was designated as being adjacent to a metropolitan area according to the Beale code. Otherwise it was assigned a zero. The variation in size of the consumer market for banking among new housing was measured as the percent of all housing units within a nonmetropolitan county in 2000 that had been constructed within the past five years.

Labor Force Characteristics

The prevalence of highly educated workers within a nonmetropolitan county was measured by the percentage of the population for both males and females 25 years and over with Associate, Bachelor's, Master's, Professional School Degree, and Doctorate

[5] U.S. Regions: Pacific, Mountain, West North Central, East North Central, West South Central, East South Central, Middle Atlantic, New England, South Atlantic.

Degree in 2000. The prevalence of unemployment within a county was measured by the percentage of the total labor force (both males and females 16 years and over) that was unemployed in 2000.

The prevalence of knowledge workers was measured by three indicators. The first indicator was the percentage of the employed labor force within a nonmetropolitan county in 2000 that consists of workers employed in financial managerial occupations. The second indicator was the percentage of the labor force within a county that consists of workers employed in financial specialist occupations. The final indicator was the percentage of the employed labor force within a nonmetropolitan county in 2000 that consists of workers employed in financial clerk's occupations.

Availability of Financial Resources

The availability of financial resources was measured by six indicators measuring the availability of income from interest, earnings, and retirement savings. The availability of interest income was measured by both the average income per household (in 1999 dollars) and the percent of households with interest, dividends, and net rental income in 2000. The availability of income from earnings was measured by both the average earnings per household (in 19991 dollars) and the percent of households with earnings in 2000. The availability of income from retirement savings was measured by both the average savings per household (in 1999 dollars) and the percent of households headed by a person 65 years or older with retirement savings in 2000.

Business Establishment Characteristics

Business Establishment characteristics were measured by five indicators. The first two of these indicators measure the potential size of key markets for commercial banks while the latter three indicators measure the local availability of key business inputs for commercial banks. The size of the business market for commercial banking was measured by the total number of business establishments within a nonmetropolitan county in 2000. The prevalence of universities was measured by the total business establishments accounted for by Colleges, Universities and Professional Schools in 2000. The local presence of software suppliers was measured by the total business establishments accounted for by software publishers. The local presence of electronic

equipment suppliers and technicians was measured by the total business establishments accounted for by office machinery and equipment rental and leasing firms in 2000. Finally, the local availability of telecommunications was measured by the total business establishments accounted for by telecommunication firms in 2000.

Method of Analysis

The study hypotheses will be tested through the use of logistic regression analysis. A logistic regression model was used to estimate the effects of financial industrial location variables on the probability that a nonmetropolitan county became a growth node in commercial banking over the 2000-2003 periods.

Multivariate logistic regression analysis was seen as an appropriate statistical technique for testing the hypothesis because it: (a) would estimate probabilities of individual factors affecting the formation of commercial banking growth nodes in the nonmetropolitan U.S. during the 2000-2003 period; (b) would calculate parameter estimates to assess the significance and relative contribution of each variable in influencing the probability of becoming a growth node; and (c) would test the overall goodness of fit of the location model. This would provide an indication of the model's theoretical utility in explaining the formation of commercial banking growth nodes within nonmetropolitan U.S. counties.

Logistic regression provides an alternative to ordinary least squares (OLS) regression analysis in cases when the dependent variable is a dichotomous measure. While OLS regression is perceived as the most appealing statistical technique in the social sciences, the use of this technique with a dichotomous dependent variable violates several of the underlying assumptions of OLS regression. Logistic regression is a form of regression which is used when the dependent variable is dichotomous and the independents variables are of any type.

Logistic regression has many analogies to OLS regression: logit coefficients correspond to b coefficients in the logistic regression equation, the standardized logit coefficients correspond to beta weights, and a pseudo R^2 statistic is available to summarize the strength of the relationship. Unlike OLS regression, however, logistic regression does not assume linearity of relationship between the independent variables

and the dependent, does not require normally distributed variables, and does not assume homoscedasticity.

The fit of the logistic regression model can be assessed by looking at the classification table, showing correct and incorrect classifications of the dichotomous dependent variable. Also, goodness-of-fit tests such as model chi-square are available as indicators of model fit as is the Wald statistic to test the significance of individual independent variables.

First, it is customary to code a binary variable as either 0 or 1. Therefore, the mean of a binary distribution so coded is denoted as P, the proportion of 1s. The proportion of zeros is (1-P), which is sometimes denoted as Q. The variance of such a distribution is PQ, and the standard deviation is Sqrt (PQ). Logistic regression uses maximum likelihood estimation (MLE) as the method to calculate the logit coefficients, in contrast to the use of OLS estimation of coefficients in regression. OLS seeks to minimize the sum of squared distances of the data points to the regression line. MLE seeks to maximize the log likelihood, which reflects how likely it is that the observed values of the dependent may be predicted from the observed values of the independents. In this way, logistic regression estimates the probability of a certain event occurring. Note that logistic regression calculates changes in the log odds of the dependent, not changes in the dependent variable itself as OLS regression does.

Logistic regression is popular, in part, because it enables the researcher to overcome many of the restrictive assumptions of OLS regression: (1) Logistic regression does not assume a linear relationship between the dependents and the independents. (2) It may handle nonlinear effects even when exponential and polynomial terms are not explicitly added as additional independents because the logit link function on the left-hand side of the logistic regression equation is non-linear. However, it is also possible and permitted to add explicit interaction and power terms as variables on the right-hand side of the logistic equation, as in OLS regression. (3) The dependent variable need not be normally distributed (but does assume its distribution is within the range of the exponential family of distributions, such as normal, Poisson, binomial, gamma). (4) The dependent variable need not be homoscedastic for each level of the independents; that is, there is no homogeneity of variance assumption. (5) Normally distributed error terms are

not assumed. (6) Logistic regression does not require that the independent variables be interval. (7) Logistic regression does not require that the independent variables be unbounded.

The following logistic regression model will be estimated to test the study hypotheses concerning the effects of the location variables on the location quotient:

$$\text{Logit}(Y) = a + b_1V1 + b_2V2 + b_3V3 + b_4V4 + b_5V5 + b_6V6 + b_7V7 + b_8V8 + b_9V9 + b_{10}V10 + b_{11}V11 + b_{12}V12 + b_{13}V13 + b_{14}V14 + b_{15}V15 + b_{16}V16 + b_{17}V17 + b_{18}V18 + b_{19}V19$$

Where:

Y= Whether or not a nonmetropolitan county is a growth node in commercial banking, 2000-2003.

a= Intercept

b= Coefficient to be estimated

$Z_{1\text{-}8}$= Region control variables

X_1= adjacency to metropolitan area, 2000

X_2= total population, 2000

X_3= % housing units constructed within the past five years, 2000

X_4= % of pop. 25 yrs and over, with college degrees, 2000

X_5= % of labor force unemployed, 2000

X_6= % employed in financial manager occupations, 2000

X_7= % employed in financial specialist occupations, 2000

X_8= % employed in financial clerks occupations, 2000

X_9= average interest income per household, 2000

X_{10}= average of earnings per household, 2000

X_{11}= average retirement savings per elderly household, 2000

X_{12}= % households with interest income, 2000

X_{13}= % households with earnings income, 2000

X_{14}= % households with retirement savings, 2000

X_{15}= total business establishments, 2000

X_{16}= total business establishments accounted for by software firms, 2000

X_{17}= total business establishments accounted for by electronic equipment repair firms, 2000

X_{18}= total business establishments accounted for by telecommunication firms, 2000

X_{19}= total business establishments accounted for by Colleges, Universities, and Professional Schools, 2000

Given the nature of the study hypotheses, it is expected that the signs of all partial regression coefficients in this model should be positive, except for the effect of unemployment, which should be negative. With this model specification, the objective will be to determine which county characteristics at the base year of the study period (2000) were related to the formation of a growth node in commercial banking by the end of the study period.

CHAPTER 7 - Empirical Findings

Location Quotient for the Dependent Variable Financial Services Concentration

As previously mentioned, I will adopt the following criteria to identify nonmetropolitan growth node in commercial banking. First, to be considered a growth node a county must have a location quotient (LQ) greater than 1.0 for commercial banking establishments in 2000. Second, the county must have experienced an increase in the LQ between 2000 and 2003. These conditions were measured by creating dichotomous variables based on the LQs for both years (called LQ_{2000} and $LQ_{2003)}$. Third, a county must have experienced a net growth in banking establishments over the 2000 - 2003 periods. This condition was measured by creating another dichotomous variable that measured whether or not the county displayed a net gain of one banking establishment over the 2000 to 2003 period. All counties that met these criteria were designated a 1 for a growth node and all others were given a zero. A SAS program was designed to account for the mentioned criteria. Based on the three binary variables representing the criteria, all nonmetropolitan counties were cross-classified in a 2x2x2 contingency table (see Table 4).

Table 4 Number of Nonmetropolitan Counties Fulfilling the Criteria for Classification as a Growth Node in Banking Establishments

	$LQ_{2003} \leq LQ_{2000}$		**$LQ_{2003} > LQ_{2000}$**		
	Absolute Change in Banking Establishments				
	Net Loss/ No Change	Net Gain ≥1	Net Loss/ No Change	Net Gain ≥1	Total
LQ_{2000} <1.0	376 (18.59%)*	10 (.49%)	349 (17.25%)	158 (7.81%)	893
LQ_{2000} >1.0	144 (7.12%)	626 (30.94%)	3 (.15%)	357 (17.64%)	1130
Total	520	636	352	515	2023

*Percentages represent percent of the total population

Within Table 4 the far right cell in the bottom row includes those nonmetropolitan counties that met the three conditions for classification as a nonmetropolitan growth node

in commercial banking. The cell frequency indicates that 357 counties were growth nodes which represented 17.64% of all the nonmetropolitan U.S. counties in the sample.

Interestingly the cell with the greatest representation was for counties that displayed a LQ greater than 1.0 in 2000, had a net increase of at least 1 banking establishment during 2000-2003, but experienced a decrease in its LQ over this period. In total, 626 (30.94%) of the nonmetropolitan counties in the sample were in this category. The explanation for this is that business establishments in commercial banking increased more slowly compared to establishments in other sectors of the local economy. Thus, in terms of the number of establishments, banking became relatively less important.

Table 5 Descriptive Statistics for Spatial Characteristics

Variable	Mean/ Median*	Standard Deviation	Minimum	Maximum
(Adjcnt) Non-metropolitan county adjacent to metropolitan county	.5230	.4996	0	1
(TotPop) Total Population	16842*	22639	61	182193
(PNwHse) percent of all houses constructed between 1995 – 2000	.0945	.0483	0	.3274

*Median is listed if the skewness was higher than 2.0 or lower than 2.0

Another interesting pattern concerns counties that did not report a LQ greater than 1.0 in 2000, but did report an increase in LQ by 2003 and a net gain of at least 1 banking establishment. There were 158 (7.8%) of the nonmetropolitan counties in this category. These counties have the opportunity in the future to become growth nodes, but were not included in the analysis because they did not report a LQ of 1.0 in 2000.

Descriptive Statistics for Independent Variables

Before models were estimated to test the proposed hypotheses, a SAS program was written to assess the descriptive characteristics of the independent variables that will be used in constructing the model.

Spatial Characteristics

The descriptive statistics for the spatial characteristic variables are displayed in Table 5. The findings indicate that 52.39% of the nonmetropolitan counties in the sample were located adjacent to a metropolitan area. There was considerable variation in total population with a range of 182,132 persons. The distribution of this variable was highly

skewed with a median of 16,842 persons. Finally, on average 9.5% of all housing units had been constructed between 1995 and 2000.

Labor Force Characteristics

Table 6 lists the descriptive statistics for the labor force characteristic variables. It was found that on average 19.8% of the population 25 years and older had earned a college degree. The average unemployment rate among the nonmetropolitan counties in the sample was 6.1%. The average percent of the labor force employed as financial managers was found to be 0.9%. Further, an average of 1.2% was found to be employed as financial specialist while an average of 0.9% was employed as financial clerks.

Table 6 Descriptive Statistics for Labor Force Characteristics

Variable	Mean/ Median	Standard Deviation	Minimum	Maximum
(PEduct) Percent of the population for both males and females 25 years and over with Associate, Bachelor's, Master's, Professional School Degree, and Doctorate Degree.	19.8453	6.6812	7.2651	66.9786
(PUnemp) Percent of the unemployed population for both males and females 16 years and over.	6.0718	2.9498	0	33.2642
(PFinMn) Percent of the (Financial Managers) occupation both males and females for the employed civilian population 16 years and over.	.4213	.2355	0	1.9126
(PFinSp) Percent of the (Financial Specialist) occupation both males and females for the employed civilian population 16 years and over.	1.2371	.4685	0	3.6803
(PFinCl) Percent of the (Financial Clerks) occupation both males and females for the employed civilian population 16 years and over.	.9038	.3408	0	2.8205

*Median is listed if the skewness was higher than 2.0 or lower than 2.0

Availability of Financial Resources

Table 7 lists the descriptive statistics for the availability of financial resources variables. The average amount of financial resources for households was used to measure the level of financial resources per household in a county, while the percent was used to measure strength of presence of households of that particular type. It was found that the average households with interest income, dividends, or net rental income (in 1999 dollars) was 8920.84 and the percent was of households of this type was 32.87. It was found that the average household with earnings (in 1999 dollars) was 40246.92 and the percent of households of this type was 75.23. There was considerable variation in the average household retirement income (in 1999 dollars) with a range of 58,154.63 households. The distribution of this variable was highly skewed with a median of

14200.52 households. The percent of households with retirement income (in 1999 dollars) was 16.65%.

Table 7 Descriptive Statistics for Availability of Financial Resources

Variable	Mean/ Median*	Standard Deviation	Minimum	Maximum
(AvgInt) Average aggregate interest, dividends, or net rental income in 1999 (dollars) for households of that type.	8920.8393	3453.57	1750	41206.34
(AvgErn) Average aggregate earnings in 1999 (dollars) for households of that type.	40246.92	5539.4981	25772.1	82864.2
(AvgSav) Average aggregate retirement income in 1999 (dollars) for households of that type.	14200.52*	4240.1796	3208.33	61362.96
(PHsInt) Percent of households with interest, dividends, or net rental income in 1999 (dollars).	32.8658	9.9883	9.3341	66.1886
(PHsErn) Percent of households with earnings in 1999 (dollars).	75.2172	5.6846	47.8474	142.6638
(PHsSav) Percent of households with retirement income in 1999 (dollars).	16.6539	4.5987	2.7624	39.0586

*Median is listed if the skewness was higher than 2.0 or lower than 2.0

Business Establishment Characteristics

Table 8 lists the descriptive statistics for the business establishment characteristics. The findings indicate that there was considerable variation in the average total business establishments with a range of 5191 establishments. The distribution of this variable was highly skewed with a median of 378 establishments. The average amount of Colleges, Universities, and Professional Schools was skewed with a range of 6, and displayed a median of 0.0. The average total business establishments accounted for by software publishers firms was highly skewed with a range of 10 and a median of 0.0 establishments of that type. The average total business establishments accounted for by office machinery and equipment rental and leasing firms was skewed with a range of 2 and a median of 0.0 for establishments of that type. Finally, the average total business establishments accounted for by telecommunications firms was 3.4%.

Table 8 Descriptive Statistics for Business Establishment Characteristics

Variable	Mean/ Median	Standard Deviation	Minimum	Maximum
(TotEst) Total Business Establishments	378*	578.9778	1	5192
(Univer) Total business establishments accounted for by Colleges, Universities, and Professional Schools	0.0*	.5345	0	6
(SftPub) Total business establishments accounted for by Software Publishers Firms	0.0*	.6567	0	10
(EqpRnt) Total business establishments accounted for by Office Machinery and Equipment Rental and Leasing Firms	0.0*	.2113	0	2
(Telcom) Total business establishments accounted for by Telecommunications Firms	3.4048	3.2701	0	32

*Median is listed if the skewness was higher than 2.0 or lower than 2.0

Logistic Regression for Binary Models

A logistic regression SAS program was written to assess the effects of each single independent variable upon the dependent variable controlling for region. The results of the models are listed in Table 9. The findings indicate that five of the nineteen models displayed significant regression coefficients, which reported a p value of less than .05. The significant models consisted of: PNwHse, PEduct, PFinCl, and AvgInt. Interestingly all the significant variables displayed the hypothesized direction of association except for PEduct and AvgInt which displayed a negative association instead of the hypothesized positive association.

Numerous insignificant variables also demonstrated a difference in association then the direction that was hypothesized. Almost all of the variables categorized as Availability of Financial Resources, except for PHsRet and PHsInt, displayed a negative association. Of these variables only AvgInt was found to be significant with a negative association.

The variables that make up the category Business Establishment Characteristics, consisting of TotEst, SftPub, EqpRnt and Univer, also displayed numerous variables that displayed a different association than was hypothesized. TelCom was the only variable that displayed a positive association but, even it was found to be insignificant like the other four.

Table 9 Logistic Regression for Binary Models Controlling for Region

Variable	Estimate	ChiSq	Pr>ChiSq
Middle Atlantic (control)	C	C	C
East North Central (control)	C	C	C
West North Central (control)	C	C	C
South Atlantic (control)	C	C	C
East South Central (control)	C	C	C
West south Central (control)	C	C	C
Mountain (control)	C	C	C
Pacific (control)	C	C	C
(Adjcnt) Non-metropolitan county adjacent to metropolitan county	0.2058	2.6585	0.1030
(TotPop) Total Population	6.4422	.0004	0.9832
(PNwHse) Percent of New Housing	3.3529	4.0963	0.0430*
(PEduct) Percent of the population for both males and females 25 years and over with Associate, Bachelor's, Master's, Professional School Degree, and Doctorate Degree.	-0.0367	8.8750	0.0029**

(PUnemp) Percent of the unemployed population for both males and females 16 years and over.	-0.0532	4.7552	0.0292*
(PFinMn) Percent of the (Financial Managers) occupation both males and females for the employed civilian population 16 years and over.	0.3314	1.7093	0.1911
(PFinSp) Percent of the (Financial Specialist) occupation both males and females for the employed civilian population 16 years and over.	-0.0125	0.0086	0.9262
(PFinCl) Percent of the (Financial Clerks) occupation both males and females for the employed civilian population 16 years and over.	0.3452	3.9154	0.0478*
(AvgInt) Average aggregate interest, dividends, or net rental income in 1999 (dollars) for households of that type.	-0.00006	7.3780	0.0066**
(AvgErn) Average aggregate earnings in 1999 (dollars) for households of that type.	-3.6841	0.0873	0.7677
(AvgSav) Average aggregate retirement income in 1999 (dollars) for households of that type.	-0.00003	3.5720	0.0588
(PHsInt) Percent of households with interest, dividends, or net rental income in 1999 (dollars).	0.0134	2.2247	0.1358
(PHsErn) Percent of households with earnings in 1999 (dollars).	-0.0104	0.7799	0.3772
(PHsRet) Percent of households with retirement income in 1999 (dollars).	0.00466	0.0896	0.7647
(TotEst) Total establishments	-0.00014	1.1848	0.2764
(SftPub) Total business establishments accounted for by Software Publishers Firms	-0.1891	2.1277	0.1447
(EqpRnt) Total business establishments accounted for by Office Machinery and Equipment Rental and Leasing Firms	-0.1483	0.2437	0.6216
(Telcom) Total business establishments accounted for by Telecommunications Firms	0.0118	0.3888	0.5329
(Univer) Total business establishments accounted for by Colleges, Universities, and Professional Schools	-0.0510	0.1641	0.6854

C: Control Var. *p<.05 **p<.01 ***p<.001

Correlations between Independent Variables

Because of the number of variables that displayed a different direction of association than was hypothesized a correlation matrix was created to address the strength and significance of association between the independent variables. The results of this analysis were placed in Table 10, which displays the Pearson's r for significant correlation for all of the Independent variables.

The findings indicate that eight of the nineteen independent variables had significant correlations with the dependent variable, banking growth node (GN). These significant variables consisted of: percent of new housing (PNwHse); percent of the population 25 years and over with an advance degree (PEduct); the unemployment rate (PUnemp); percent employment in the financial clerks occupations (PFinCl); average interest income (AvgInt); average retirement (AvgSav); percent of households with interest income (PHsInt); and, percent of total business establishments accounted for by software publisher firms (SftPub).

Table 10 Pearson's r Correlation Coefficients for Independent Variables

	GN	Adjcnt	TotPop	PNwHse	PEduct	PUnemp	PFinMn	PFinSp	PFinCl	AvgIn
GN	1.0									
Adjcnt	.0345	1.0								
TotPop	.0037	.2946~	1.0							
PNwHse	-.0606^	.2072~	.1969~	1.0						
PEduct	-.0927~	-.1379~	.155~	-.0488~	1.0					
PUnemp	-.0548*	.0641^	.0983~	.2171~	-.2271~	1.0				
PFinMn	.0216	-.052*	.071^	-.0702^	.2442~	-.1256~	1.0			
PFinSp	-.0123	-.054*	.0967~	-.0772~	.4311~	-.2121~	.1975~	1.0		
PFinCl	.0691~	-.0293	.0243	-.0789~	-.1142~	.0063	.0421	-.0011	1.0	
AvgInt	-.0932~	-.0234	-.0433	.1143~	.2316~	-.0698^	.063^	.1291~	-.089~	1.0
AvgErn	.0067	.224~	.3957~	.1891~	.438~	-.3016~	.1533~	.2914~	-.0412	.1985
AvgSav	-.0677^	.0407	.0758~	.2403~	.2309~	.0063	.0298	.0923~	-.0701^	.2801
PHsInt	.0507*	-.1362~	-.0447*	-.3923~	.5775~	-.5466~	.2059~	.3489~	-.0021	-.003
PHsErn	-.0263	.0394	.106~	-.0022	.5071~	-.3449~	.0906~	.2438~	-.1238~	.0622
PHsSav	.0072	.1991~	.2568~	.2461~	-.089~	.1769~	-.0125	-.0886~	.0474*	-.043
TotEst	-.0253	.1884~	.9295~	.161~	.3428~	.002	.1307~	.2029~	.0002	.0629
SftPub	-.0503*	.0592^	.4093~	.0914~	.3663~	-.0206	.1024~	.1852	-.0271~	.1152
EqpRnt	-.0133	.0516*	.2274~	.0226	.0683^	.0074	.0142	.0556*	.0152	.027
Telcom	.0156	.1461~	.7774~	.0718^	.2682~	.0381	.0981~	.1973~	.0222	.006
Univer	-.0111	.0881~	.4141~	-.0106	.2620~	-.0051	.0717^	.1398~	-.0139	-.029

* Significant at p<.05 level ^Significant at p<.01 level ~ Significant at p<.001 level

All of the significant independent variables exhibit a negative correlation, except for the percent employed in financial clerk's occupations (PFinCl) and the percent of households with interest income (PHsInt). Both of these had positive correlations with the dependent variable. These correlations were very weak in magnitude, and ranged from-.0503 (presence of software publisher firms) to -.0932 (average interest income).

The correlation analyses also revealed that vast majority of correlations among independent variables were significant. Of the five significant binary models, PEduct had the most significant correlations, in that it was significantly correlated with all of the other eighteen independent variables. PEduct's highest correlation was with PHsInt, which displayed a Pearson's r of .5775. PEduct also had moderate correlations with PHsErn (.5071), AvgErn (.4381) and PFinSp (.4311). These moderate correlations make logical sense, in that it would be expected counties with higher levels of education achievement would also have higher incomes and a higher percent of the labor force employed as financial specialist.

Logistic Regression for Partial Models

A logistic regression SAS program was written to assess the independent effects of each group of independent variable upon the dependent variable controlling for region. The results consist of four models concerning spatial characteristics, labor force characteristics, availability of financial resources, and business establishment characteristics.

Table 11 presents the logistic regression results for Model 1, specifying the spatial characteristics and control variables as independent variables. The model was found to fit the sample data with a significant model chi-square value of 92.4727. The gamma coefficient was .316, indicating a moderate-to-weak goodness of fit. As would be expected by the hypothesis, both regression coefficients adjacency and total population were found to be positive, however both variables were found to be insignificant. Interestingly, the logistic regression coefficient for new housing was found to have a negative effect on whether a county was considered a bank growth node. This variable, PNwHse, was the only significant variable among the spatial characteristic variables. All of the region control variables displayed a positive relationship, but only east north central (ENC), west north central (WNC), and east south central (ESC) displayed a significant chi-square.

Table 11 Logistic Regression for Spatial Characteristics Controlling for Region (Model 1)

Variable	Estimate	ChiSq	Pr>ChiSq
Intercept	-3.3635	10.5892	0.0011**
Middle Atlantic (control)	1.4964	1.9045	0.1676
East North Central (control)	2.8159	7.5271	0.0061**
West North Central (control)	2.0969	4.1521	0.0416*
South Atlantic (control)	1.6125	2.4060	0.1209
East South Central (control)	2.5192	5.9134	0.0150*
West south Central (control)	1.8421	3.1822	0.0744
Mountain (control)	1.0871	1.0534	0.3047
Pacific (control)	1.237	1.2543	0.2627
(Adjcnt) Non-metropolitan county adjacent to metropolitan county	0.2473	3.6066	0.0576
(TotPop) Total Population	5.147	0.0	0.9987
(PNwHse) Percent of New Housing	-3.8133	5.0011	0.0253*
Model:	**ChiSq**	**Pr> ChiSq**	**Gamma**
	92.4727	<.0001***	.316

C: Control Var. *p<.05 **p<.01 ***p<.001

Table 12 presents the logistic regression results for Model 2, specifying the labor force characteristics and control variables as independent variables. The model was found to fit the sample data with a significant model chi-square value of 108.6023. The gamma coefficient was .343, indicating a moderate-to-weak goodness of fit.

Table 12 Logistic Regression for Labor Force Characteristics Controlling for Region (Model 2)

Variable	Estimate	ChiSq	Pr>ChiSq
Intercept	-2.3304	4.3627	0.0367*
Middle Atlantic (control)	1.2968	1.4149	0.2343
East North Central (control)	2.3317	5.0969	0.0240*
West North Central (control)	1.6511	2.5783	0.1083
South Atlantic (control)	0.9590	0.8430	0.3586
East South Central (control)	1.7810	2.9118	0.0879
West south Central (control)	1.3125	1.5935	0.2068
Mountain (control)	0.7258	0.4743	0.4910
Pacific (control)	1.1683	1.1126	0.2915
(PEduct) Percent of the population for both males and females 25 years and over with Associate, Bachlor's, Maaster's, Professional School Degree, and Doctorate Degree.	-0.0503	12.6444	0.0004***
(PUnemp) Percent of the unemployed population for both males and females 16 years and over.	-0.0634	6.2295	0.0126*
(PFinMn) Percent of the (Financial Managers) occupation both males and females for the employed civilian population 16 years and over.	0.4509	2.9676	0.0849
(PFinSp) Percent of the (Financial Specialist) occupation both males and females for the employed civilian population 16 years and over.	0.1085	0.5387	0.4630
(PFinCl) Percent of the (Financial Clerks) occupation both males and females for the employed civilian population 16 years and over.	0.2936	2.7964	0.0945
Model 2:	**ChiSq**	**Pr> ChiSq**	**Gamma**
	108.6023	<.0001***	0.343

C: Control Var. *p<.05 **p<.01 ***p<.001

Three of the variables, consisting of the percentage of financial managers, financial specialist, and financial clerks, were found to be insignificant even though the logistic regression coefficients did display the hypothesized positive association. Percentage of education was found to be significant, reporting a significant chi-square value of 12.6444. However, PEduct did not display a positive association as predicted by the hypothesis. The unemployment rate was found to be significant with a chi-square value of 6.2295. It also did not meet the requirements of a hypothesized positive association, displaying a logistic regression coefficient of -0.0634. In comparison to Model 1, all of the coefficients maintained their positive association, but only ENC was found to be significant.

Table 13 Logistic Regression for Availability of Financial Resources Controlling for Region (Model 3)

Variable	Estimate	ChiSq	Pr>ChiSq
Intercept	-1.8941	1.3085	0.2527
Middle Atlantic (control)	1.3055	1.4360	0.2308
East North Central (control)	2.5218	6.0329	0.0140*
West North Central (control)	1.7987	3.0389	0.0813
South Atlantic (control)	1.6300	2.4552	0.1171
East South Central (control)	2.4581	5.5851	0.0181*
West south Central (control)	2.0324	3.8456	0.0499*
Mountain (control)	0.8968	0.7224	0.3954
Pacific (control)	1.1850	1.1479	0.2840
(AvgInt) Average aggregate interest, dividends, or net rental income in 1999 (dollars) for households of that type.	-0.00007	7.7409	0.0054**
(AvgErn) Average aggregate earnings in 1999 (dollars) for households of that type.	6.1556	0.1272	0.7214
(AvgSav) Average aggregate retirement income in 1999 (dollars) for households of that type.	-0.00003	3.1022	0.0782
(PHsInt) Percent of households with interest, dividends, or net rental income in 1999 (dollars).	0.0227	5.2045	0.0225*
(PHsErn) Percent of households with earnings in 1999 (dollars).	-0.0192	1.1689	0.2796
(PHsRet) Percent of households with retirement income in 1999 (dollars).	-0.0042	0.0446	0.8327
Model:	**ChiSq**	**Pr> ChiSq**	**Gamma**
	101.7152	<.0001***	0.330

C: Control Var. *p<.05 **p<.01 ***p<.001

Table 13 presents the logistic regression results for Model 3, specifying the availability of financial resources and control variables as independent variables. The model was found to fit the sample data with a significant model chi-square value of 101.7152. The gamma coefficient was .330, indicating a moderate-to-weak goodness of fit. The independent variables AvgErn and PHsInt were the only variables that were consistent with the study hypothesis, which stated a positive association. Among the six availability of financial resource variables AvgInt and

PHsInt were the only variables that displayed a chi-square large enough to be significant. As consistent with Model 1, ENC, ESC, and WSC, were the only significant control variables.

Table 14 presents the logistic regression results for Model 4, specifying the business establishment characteristics and control variables as independent variables. The model was found to fit the sample data with a significant model chi-square value of 93.8256. The gamma was .309, indicating a moderate-to-weak goodness of fit.

Table 14 Logistic Regression for Business Establishment Characteristics Controlling for Region (Model 4)

Variable	Estimate	ChiSq	Pr>ChiSq
Intercept	-3.1554	9.3158	0.0023*
Middle Atlantic (control)	1.4260	1.7177	0.1900
East North Central (control)	2.4786	5.7756	0.1620
West North Central (control)	1.7244	2.7819	0.0953
South Atlantic (control)	1.1502	1.2211	0.2692
East South Central (control)	1.9424	3.5037	0.0612
West south Central (control)	1.4407	1.9210	0.1657
Mountain (control)	0.5515	0.2698	0.6035
Pacific (control)	0.9535	0.7377	0.3904
(TotEst) Total establishments	-0.0005	4.7868	0.0287*
(SftPub) Total business establishments accounted for by Software Publishers	-0.1581	1.2707	0.2596
(EqpRnt) Total business establishments accounted for by Office Machinery and Equipment Rental and Leasing	-0.0762	0.0608	0.8052
(Telcom) Total business establishments accounted for by Telecommunications	0.0853	6.7512	0.0094**
(Univer) Total business establishments accounted for by Colleges, Universities, and Professional Schools	-0.00939	0.0046	0.9460
Model:	**ChiSq**	**Pr> ChiSq**	**Gamma**
	88.8588	<.0001***	.304

C: Control Var. *p<.05 **p<.01 ***p<.001

Among the business establishment variables, TelCom was the only variable consistent with the stated hypothesis that displayed a positive association. Telecommunication establishments and total establishments were the only variables found to have a significant relation to predicting the whether a county was indicated as a bank growth node. Interestingly, TotEst displayed a significant negative relation, displaying a chi-square of 4.7868. While all of the region control variables displayed a positive relation, none of them were found to be significant.

Logistic Regression for the Full Model

A logistic regression SAS program was written to assess the effects of the full model. The full model specifies the spatial, labor force, availability of financial resources, establishment, and region control variables as independent variables. The results of the full model are presented in Table 15.

Table 15 Logistic Regression for Full Model Controlling for Region

Variable	Estimate	ChiSq	Pr>ChiSq
Intercept	-1.9382	1.0407	0.3077
Middle Atlantic (control)	0.5593	0.2543	0.6140
East North Central (control)	1.8043	2.9650	0.0851
West North Central (control)	1.1626	1.2197	0.2694
South Atlantic (control)	0.9030	0.7222	0.3954
East South Central (control)	1.6949	2.5379	0.1111
West south Central (control)	1.1973	1.2803	0.2578
Mountain (control)	0.4715	0.1922	0.6611
Pacific (control)	0.9393	0.6988	0.4032
(Adjcnt) Non-metropolitan county adjacent to metropolitan county	0.0892	0.3951	0.5296
(TotPop) Total Population	0.000028	6.0049	0.0143*
(PNwHse) Percent of New Housing	-1.6695	0.7727	0.3794
(PEduct) Percent of the population for both males and females 25 years and over with Associate, Bachelor's, Master's, Professional School Degree, and Doctorate Degree.	-0.0476	6.4573	0.0110*
(PUnemp) Percent of the unemployed population for both males and females 16 years and over.	-0.0453	2.0437	0.1528
(PFinMn) Percent of the (Financial Managers) occupation both males and females for the employed civilian population 16 years and over.	0.4324	2.6199	0.1055
(PFinSp) Percent of the (Financial Specialist) occupation both males and females for the employed civilian population 16 years and over.	0.0877	0.3340	0.5633
(PFinCl) Percent of the (Financial Clerks) occupation both males and females for the employed civilian population 16 years and over.	0.2581	2.0672	0.1505
(AvgInt) Average aggregate interest, dividends, or net rental income in 1999 (dollars) for households of that type.	-0.00005	4.0151	0.0451*
(AvgErn) Average aggregate earnings in 1999 (dollars) for households of that type.	3.0075	0.0228	0.8800
(AvgSav) Average aggregate retirement income in 1999 (dollars) for households of that type.	-0.00001	0.6415	0.4232
(PHsInt) Percent of households with interest, dividends, or net rental income in 1999 (dollars).	0.0276	4.4707	0.0345*
(PHsErn) Percent of households with earnings in 1999 (dollars).	-0.00734	0.1416	0.7067
(PHsRet) Percent of households with retirement income in 1999 (dollars).	-0.00254	0.0152	0.9018
(TotEst) Total establishments	-0.00151	8.2238	0.0041**
(SftPub) Total business establishments accounted for by Software Publishers	-0.0859	0.3412	0.5591
(EqpRnt) Total business establishments accounted for by Office Machinery and Equipment Rental and Leasing	-0.0630	0.0404	0.8406
(Telcom) Total business establishments accounted for by Telecommunications	0.0841	6.2006	0.0128*
(Univer) Total business establishments accounted for by Colleges, Universities, and Professional Schools	0.0125	0.0075	0.9310
Model:	**ChiSq**	**Pr> ChiSq**	**Gamma**
	136.5077	<.0001***	.373

C: Control Var. *p<.05 **p<.01 ***p<.001

The model was found to fit the sample data with a significant model chi-square value of 136.5077. The gamma was .373, indicating a moderate to weak goodness of fit. Out of the nineteen hypothesized variables, six variables were found to be significant. The significant variables consisted of TotPop, PEduct, AvgInt, PHsInt, TotEst, and TelCom. All six variables were significantly related ($p<.05$) to bank growth node except TotEst, which was significantly related at $p<.01$. In discordance with the proposed hypothesis PEduct, AvgInt, and TotEst all produced negative relationships with bank growth node. When controlling for all the attribute variables, none of the region control variables were found to be significantly related to bank growth node.

CHAPTER 8 - Discussion, Conclusions and Recommendations for Future Research

Three of the study hypotheses -- H2, H12, and H19 -- relating to the classification of a county as a bank growth node were supported by the empirical findings of this study (see Table 15). Thus, it was found that controlling for all other variables specified, nonmetropolitan counties with larger populations in 2000 had a significantly higher probability of becoming a growth node in commercial banking over the 2000-2003 periods. This was also found to be true for nonmetropolitan counties with a larger percentage of households with interest income and those with a larger percentage of business establishments accounted by telecommunications firms. Three other independent variables were found to be significantly related to county being a growth node – the percent of 25 and over population with a college degree, average interest income per household and total number of business establishments. However, the hypotheses concerning these independent variables were not supported as the sign of the logistic regression coefficients for these variables was negative rather than hypothesized.

Among the partial models analyzing the effects of the four categories of independent variables, the labor force characteristics model had the best goodness-of-fit, displaying a Gamma of .343 (see Table 12). Within this model, both the percentage of population 25 years and over with a college degree ($p. < .0004$) and percent of the labor force unemployed ($p. < .0126$) were significantly related to a county being designated as a bank growth node. However, once these variables were placed into the full model, only the percent population with a college degree had a significant relation with the dependent variable, displaying a drop in probability from .0004 to .011.

The loss in significance of the percent of unemployed in the full model can be accounted for by correlations between it and other independent variables that were not controlled for in the partial model, but were added in the full model. In order to determine which variables were correlated with the percent of unemployed a stepwise regression model was created. This was accomplished by adding highly correlated variables into the partial model until a change in significance was noticed.

The unemployment rate was found to have a fairly strong correlation with the percent of households with interest income. These variables were significantly correlated with a Pearson's r of -.5466. When the percent of households with interest income was added to the Labor Force Characteristics model, the significance of the percent of unemployed changed from a probability of .0126 to .2213. While the percent of unemployed was insignificant in this new model, percent of household with interest, dividends, or net rental income maintained its significance ($p. < .0432$), indicating that it was a better predictor of whether a county was designated as a growth node.

Table 16 Outcome of Hypothesis Tests

Hypotheses	Results
H_1: Under the condition of being located in a non-metropolitan setting, areas adjacency to metropolitan areas should be associated with a higher concentration of banking establishments.	Not Supported
H_2: Under the condition of being located in a non-metropolitan setting, possessing a larger population should be associated with a higher concentration of banking establishments.	Supported
H_3: Under the condition of being located in a non-metropolitan setting, a higher concentration of new housing construction should be associated with a higher concentration of banking establishments.	Not Supported
H_4: Under the condition of being located in a non-metropolitan setting, a higher percent of highly educated workers should be associated with a higher concentration of banking establishments.	Not Supported
H_5: Under the condition of being located in a non-metropolitan setting, areas with a higher percent of the unemployed population should be associated with a lower concentration of financial establishments.	Not Supported
H_6: Under the condition of being located in a non-metropolitan setting, a higher percent of the labor force employed in financial manager occupations should be associated with a higher concentration of banking establishments.	Not Supported
H_7: Under the condition of being located in a non-metropolitan setting, a higher percent of the labor force employed in financial specialist occupations should be associated with a higher concentration of banking establishments.	Not Supported
H_8: Under the condition of being located in a non-metropolitan setting, a higher percent of the labor force employed in financial clerk occupations should be associated with a higher concentration of banking establishments.	Not Supported
H_9: Under the condition of being located in a non-metropolitan setting, a higher average interest income per household should be associated with a higher concentration of banking establishments.	Not Supported
H_{10}: Under the condition of being located in a non-metropolitan setting, a higher average of earnings per household should be associated with a higher concentration of banking establishments.	Not Supported
H_{11}: Under the condition of being located in a non-metropolitan setting, a higher average retirement savings per elderly household should be associated with a higher concentration of banking establishments.	Not Supported
H_{12}: Under the condition of being located in a non-metropolitan setting, a higher percent of the population with interest income should be associated with a higher concentration of banking establishments.	Supported
H_{13}: Under the condition of being located in a non-metropolitan setting, a higher percent of the population with earnings income should be associated with a higher concentration of banking establishments.	Not Supported
H_{14}: Under the condition of being located in a non-metropolitan setting, a higher percent of the population with retirement savings should be associated with a higher concentration of financial establishments.	Not Supported
H_{15}: Under the condition of being located in a non-metropolitan setting, possessing a larger number of business establishments should be associated with a higher concentration of banking establishments.	Not Supported

H_{16}: Under the condition of being located in a non-metropolitan setting, the presence of a university should be associated with a higher concentration of banking establishments.	Not Supported
H_{17}: Under the condition of being located in a non-metropolitan setting, areas with a higher number of business establishments accounted for by software firms should be associated with a higher concentration of banking establishments.	Not Supported
H_{18}: Under the condition of being located in a non-metropolitan setting, areas with a higher number of business establishments accounted for by electronic equipment repair firms should be associated with a higher concentration of banking establishments.	Not Supported
H_{19}: Under the condition of being located in a non-metropolitan setting, areas with a higher number of business establishments accounted for by telecommunication firms should be associated with a higher concentration of banking establishments.	Supported

The Availability of Financial Resources model (see Table 13) had the second best goodness-of-fit, displaying a Gamma of .33. This model contained the percent of households with interest income variable previously mentioned. This variable was significantly related to a county being a bank growth node, displaying a probability of .0054 in the partial model and .0345 in the full model. Interestingly, out of all the independent variables in this category, both the average interest income and percent of household with interest income were the only significant independent variables of this type in the partial and full models. However, while the average household aggregate interest, dividends, or net rental income had a stronger effect in the partial model ($p. < .0054$), it was the percent of households with interest income that was stronger in the full model ($p. < .0345$).

The Spatial Characteristics model (see Table 11) had the third best goodness-of-fit, with a Gamma of .316. The percent of new housing was the only significant variable in the partial model, listing a probability of .0253. However once incorporated into the full model this variable became insignificant with a probability of .3794. As before, a stepwise regression was created to account for variables that were correlated with this variable and cause a change in significance. The percent of new housing variable was also highly correlated with the percent of households with interest income, listing a Pearson's r correlation of -.3923. However the percent of housing variable did not display a change in significance until both the percent of households with savings (r .2461) and the average household aggregate savings (r .2403) were added into the partial model. These three variables were able to account for enough correlation between them and the percent of housing variable as to raise its probability from .0253 to .0873.

Another interesting relation also occurred between the total population variable and a county being a bank growth node. In the partial model total population was insignificant and had

a probability value of .9987, but had changed into a significant relation (p. < .0143) in the full model. This variable shared a very strong correlation with total business establishment, listing a significant Pearson's r correlation of .9295. When this variable was added to the partial model total population's probability lowered to .0059. This change in significance in total population when controlling for the total number of establishments implies a statistical suppression (McClendon, 1999).

The Business Establishment Characteristics model (Table 14) had the lowest goodness-of-fit out of the four partial models with a Gamma of .309. This model had two variables that were significant in both the partial and full models. The two variables were number of total business establishments accounted for by telecommunication firms, which had a probability value of .0094, and total establishments, which had a probability value of .0287 in the partial model. These two variables switched in strength of significance in the full model, with total business establishments listing a probability of .0041 and number of total establishments accounted for by telecommunication firms at .0128. This change in association was due to the high correlation between total population and total establishments that was not accounted for in the partial model.

The analyses in this study showed that the development of nonmetropolitan growth nodes in commercial banking over the 2000-2003 periods is related to six characteristics: population size; percent of population with a college degree; average interest income; percent of households with interest income; total number of business establishments; and the relative presence of telecommunication firms. These core characteristics reinforce a model of the bank's role as a facilitator between individuals and establishments. The presence of telecommunications firms can be viewed as a means on which the banking industry relies to facilitate transactions.

One open question is whether it is the local presence of digital telecommunications firms versus simply having access to digital telecommunications services that is important to the development of bank growth nodes? Given the extensive coverage areas of digital telecommunications services, even in the nonmetropolitan U.S., the study findings would support the former. Previous research has found that having services firms in close proximity facilitates training, lowers costs and produces more efficient resolution of technological problems by client firms – in this case banks (Goe, et al., 2000). While the findings did not confirm that nonmetropolitan bank growth nodes were formed because of the presence of local

telecommunications firms, they do indicate that commercial banking establishments increased in number and became more concentrated in nonmetropolitan counties where telecommunications firms represented a larger component of the local economy in 2000.

Comparing the strength of logit coefficients presents a problem. Menard (2002) warned that as of 1995, SAS's "standardized estimate" coefficients were really only partially standardized. Therefore, SAS no longer calculates the standardized estimate as a part of the analysis of maximum likelihood estimates within the logistic procedure. In order to produce standardized estimates to analyze the different strength among independent variables a SAS program was written to create standardize estimates. This was accomplished by creating new standardized variables by subtracting the mean of each input variable and dividing by its standard deviation. Once standardized each variable was then placed into a new logistic regression model with giving a result which is not the standardized logit coefficient, but can be used to rank the relative importance of the independent variables (Menard 2002:48). The standardized estimates resulting from this procedure are listed in Table 17.

Table 17 Standardized Estimates for the Consideration of a Non-metropolitan County Being a Bank Growth Node

Variable	Standardized Estimate	Pr.>ChiSq
(TotPop) Total Population	.6371	.0143
(PEduct) Percent of the population for both males and females 25 years and over with Associate, Bachelor's, Master's, Professional School Degree, and Doctorate Degree.	-.3178	.0110
(AvgInt) Average aggregate interest, dividends, or net rental income in 1999 (dollars) for households of that type.	-.1747	.0451
(PHsInt) Percent of households with interest, dividends, or net rental income in 1999 (dollars).	.2762	.0345
(TotEst) Total establishments	-.8720	.0041
(Telcom) Total business establishments accounted for by Telecommunications	.2750	.0128

Total establishments had the strongest effect on a county being a nonmetropolitan growth node displaying a standardized estimate of -.8720. This variable was followed by total population which had a standardized estimate of .6371. The rest of the variables listed standardized estimates under .5, with the percent of population with a college degree displaying -.3178. The percent of households with interest income displayed a standardized estimate of

.2762, and number of telecommunication establishments had .2750. Finally, the average interest income displayed the weakest effect, displaying a standardized estimate of .1747.

Interpreting the effects of logit coefficients in terms of odds-ratios presents a problem, because odds-ratios are not linearly related to probabilities and they do not identify the effects of independent variables on the probability of being in a particular category of a dichotomous variable. In order to compare the effects of independent variables, Dennis Roncek proposes the interpretation of logit coefficients in terms of probabilities calculated from econometrics procedures (Roncek, 1991: 509).

To calculate the predicted probability of being in the category of interest requires choosing a specific value of each independent variable, multiplying it by the appropriate logistic regression coefficient, summing the products and the constant, and exponentiating the sum to obtain the numerator which is then divided by the result of 1 plus the numerator (Roncek, 1991: 514). This process identifies the predicted probability of being in the category of interest for cases with specified values of the independent variable.

While this gives the predicted probability of being in the category of interest, further calculations are needed to find the effects of independent variables on changes in the probability of being in the category of interest. To accomplish this Roncek proposes calculating the predicted probabilities for different values of the independent variable of interest, while holding the other independent variables constant at meaningful values. The effect of moving from one value to another is then obtained by subtracting the predicted probabilities (Roncek, 1991: 513). The differences between the two probabilities represent the effect of changing the values of the independent variable of interest on the probability of being in the category of interest of the dichotomous dependent variable.

Table 18 contains the predicted probabilities for select changes in the values of the six significant variables when controlling for all other independent variables. Each predicted probability was calculated using the procedures outlined by Roncek, with all control variables assigned their average as the specific value of the independent variables. The probabilities in the table were calculated by individually changing the values of the independent variables according to their different percentiles, in order to assess their independent effect on the probability of a county being a bank growth node.

Table 18 Probabilities for the Consideration of a Non-metropolitan County Being a Bank Growth Node

Variable	Min.	10th Pct.	1st Qtr	Med.	3rd Qtr.	90th Pct.	Max.
(TotPop) Total Population	.1566	.1710	.1893	.2290	.3196	.4465	.9682
(PEduct) Percent of the population for both males and females 25 years and over with Associate, Bachelor's, Master's, Professional School Degree, and Doctorate Degree.	.3969	.3386	.3114	. 2720	.2369	.1998	.0369
(AvgInt) Average aggregate interest, dividends, or net rental income in 1999 (dollars) for households of that type.	.341	.2976	.2863	.2726	.2532	.2308	.0671
(PHsInt) Percent of households with interest, dividends, or net rental income in 1999 (dollars).	.1589	.1994	.2257	.2683	.3109	.3413	.4756
(TotEst) Total establishments	.4591	.4251	.3918	.3253	.2098	.1099	.0004
(Telcom) Total business establishments accounted for by Telecommunications	.2136	.2136	.2280	.2590	.2925	.3473	.8002

Total population indicated a significant positive relationship with the dependent variable bank growth node. This indicates that a rise in the county's population would be associated with a change in the likelihood that a nonmetropolitan county is designated as a bank growth node. Total population indicated a predicted probability of .2290 when the median was used as the value of interest and all other variables were assigned their averages as controls. When the value of interest was raised to the 3rd quartile the predicted probability changed to .3196, indicating a change in the predicted probability of .0906. This means that by moving the value of total population from the median to the 3rd quartile, while holding all other values constant, a county was 39.6 times more likely to be a nonmetropolitan growth node.

Total business establishments indicated a significant negative relationship with the dependent variable bank growth node. This indicates that as the total number of business establishments in a nonmetropolitan county decreases the predicted probability of the county being designated a bank growth node increases. This means that business associated with counties being designated as a bank growth node are characterized by a lower number of establishments than those counties not designated as a bank growth node. When the median value of the total number of establishments was used as the value of interest, the result was a predicted probability of .3253 compared to .3918 for the first quartile. This means that a change in a counties total number of business establishments from the median to the 1st quartile means that a county is 20.4 times more likely to be a bank growth node.

This finding seems contrary to the incentives and logic of bank location presented in previous chapters. It is important to point out that total business establishments was highly correlated with total population (r=.930) and percent business establishments accounted for by telecommunications firms (r=.813). These correlations make logical sense in that nonmetropolitan counties with a greater number of business establishments in 2000 also had larger populations. Moreover, there was a stronger presence of telecommunication firms in these larger, more developed counties. The negative logistic regression coefficient for total number of business establishments in the full model indicates that controlling for these factors, growth nodes were more likely to develop in nonmetropolitan counties with smaller economies compared to the few counties with larger number of business establishments, but smaller populations and little-to-no presence of telecommunications firms.

Percent of the population for both males and females 25 years and over with Associate, Bachelor's, Master's, Professional School Degree, and Doctorate Degree indicated a significant negative relationship with the dependent variable. This indicates that counties designated as a bank growth node were more likely to have a lower percent of the population with a college degree, controlling for the other independent variables. The change in difference of predicted probability between the median and 1st quartile was .0394. This means that by lowering a county's percent of population with a college degree, from the median to the 1st quartile would make the county 14.5 times more likely to be designated as a nonmetropolitan bank growth node.

The negative relationship between percent population with a college degree and a nonmetropolitan county being a growth node was found in both the partial and full models. Thus, controlling for the other independent variables, growth nodes developed in nonmetropolitan counties with less-educated adult populations. The educational attributes of the adult population were hypothesized to be important to the location of commercial banking because of the effects of education on the extent and quality of employment, and in allowing higher incomes. One possible explanation for this contrary finding is that banking was already sufficiently developed in nonmetropolitan counties with highly educated populations prior to the study period examined. Thus, the negative relationship could suggest that commercial banking was spatially diffusing to new markets with less-educated populations during the 2000-2003 periods.

Average interest income had a significant, negative relationship, with the dependent variable. The change in the predicted probability from the median to the first quartile for this

variable was .0137. This indicates that by lowering the average interest income from the median to the 1st quartile would make the county 5 times more likely to be a nonmetropolitan bank growth node. This negative relationship appears contrary to the positive relationship found between the percent of households with interest income and the dependent variable. The change in the predicted probability of the percent of households with interest income from the median to the 3rd quartile was .0426. This change in the percent of households with interest income would make a county is 15.9 times more likely to be a bank growth node.

The findings for these two independent variables indicate that growth nodes developed in nonmetropolitan counties with a higher percentage of households with interest income, but with smaller average interest incomes. Consistent with the ex post facto explanation posited for the college educated population, one possibility is that banking was already sufficiently developed in nonmetropolitan counties with greater levels of interest income (i.e. indicative of wealth) prior to the study period. Thus, growth nodes formed in nonmetropolitan counties where a higher percentage of households possessed some wealth, but at lower levels. An assessment of the significant findings suggests that the development of growth nodes in commercial banking during the 2000-2003 period to place predominantly in nonmetropolitan counties that represented markets that were more marginal in some ways; that is, they tended to have smaller economies, less wealth, and less-educated populations.

Relation of Empirical Findings to Fligstein's Theory, Storper and Walker's Theory, and Industrial Location Theory

While Fligstein's Political Cultural Approach theory was not specifically tested in any of these models the findings do suggest that the creation of niche markets and the location of bank growth nodes was in-line with his theory. It was noted that the survivability of any challenger firm was conditional upon their understanding of the culture created by the dominant firm. The introduction of new applications of information technology for commercial banking (e.g. digital telecommunication systems) contributed toward the development of new cultural conceptions of control within the market field of commercial banking, which allowed for the opening of new niche markets and the formation of bank growth nodes within nonmetropolitan counties in the U.S.

Numerous independent variables supported by industrial location theory were not supported by the bank location model. One reason for this could be the specialized service that banks play as a business establishment. The insight provided by Storper and Walker concerning the inconsistent geography of industrial growth was important in understanding the relationship between financial services and businesses as both moves into new territories. However, banks do not operate like the typical business with inputs and outputs, but instead represent a facilitator between business establishments and individuals.

Future Research

While this research contributes to the literature incorporating commercial banking into location theory, it does have its limitations. In this study, it was not possible to use a larger time period to properly assess the relation of these characteristics upon the development of a bank growth node because of data limitations. While the methodology used in this analysis was sound changes in the classification of the secondary data set used did not allow for more than a three year time span to be analyzed for the presence of change. Future research should examine a longer time period.

Further problems may have been caused by restrictions placed on the dependent variable in calculating a bank growth node. In this analysis a bank growth node was assigned to counties that had above average concentrations of banking in both 2000 and 2003. Counties that had a below average concentration in 2000, had an above average concentration in 2003, and had at least one net gain of banking establishments were not designated as a bank growth node in this analysis. This restriction may have caused the model to miss the presence of counties that were developing concentrations of commercial banks and becoming future growth nodes as defined in this study.

Bibliography

Abrams, Burton A., Russell F. Settle. 1992. *What Can Regulators Regulate? The Case of Bank Entry.* Journal of Money, Credit and Banking. Vol. 24, No. 4. pp. 511-518.

Anderson, Thomas, Eli Cox, and David Fulcher. *Bank Selection Decisions and Market Segmentation.* Journal of Marketing, Vol. 40, No. 1. 1976, 40-45.

Alhadeff, David & Charlotte, *Growth and Survival Patterns of New Banks.* Journal of Money, Credit, and Banking, Vol. 8, No. 2. !976, 199-208.

Bauerlein, Valerie, *Bank Start-Ups Rush In Despite Profit, Loan Woes*. The Wall Street Journal 2007 (25 January): A2.

Claire, R. T. "Branch Banking in Texas: Implications for Bank Structure." Federal Reserve Bank Dallas, *Economic Review*. 1987: 1-12.

Christaller, W. 1935. *Central Places in Southern Germany.* English Edition 1966. Englewood Cliffs: Prentice-Hall.

Clarke, Margaret. *Geographic Deregulation of Banking and Economic Growth.*
Journal of Money, Credit, and Banking, Vol. 36, No. 5 @004, 929-942.

Cetorelli, Nicola, Michele Gamera. 2001. *Banking Market Structure, Financial Dependence and Growth: International Evidence from Industry Data.* The Journal of Finance, Vol. 56, No. 2, pp. 617-648.

Dymski, Gary. 1999. *The Bank Merger Wave.* M.E. Sharpe, Armonk, New York.

Fligstein, Neil. 2001. *The Architecture of Markets.* Princeton University Press.

Fligstein Neil. 1996. *Markets as Politics: A Political-Cultural Approach to Market Institutions.* American Sociological Review, Vol. 61, No. 4. pp. 656-673.

Fry, Joseph N., David C. Shaw, C. Haehling von Lanzenauer, and Cecil R. Dipchand. 1973. *Customer Loyalty to Banks: A Longitudinal Study.* The Journal of Business, Vol. 46, No. 4. pp. 517-525.

Gilly, Mary C., Valarie A Zeithaml. 1985. *The Elderly Consumer and Adoption of Technologies.* The Journal of Consumer Research, Vol. 12, No.3, pp. 353-357.

Glasberg, Davita, & Dan Skidmore. 1997. Corporate *Welfare Policy and the Welfare State*. Aldine De Gruyter.

Goe, W. Richard, Barry Lentnek, and Alan MacPherson. *The Role of Contact Requirements in Producer Services Location.* Environment and Planning Vol. 32, 2000, 131-145.

Goe, W. Richard. 2002. *Factors Associated with the Development of Nonmetropolitan Growth Nodes in Producer Service Industries, 1980-1990.* Rural Sociology. Vol 67, No 3. pp. 416-411.

Green, Gary P. 1987. *Finance Capital and Uneven Development.* Westview Press.

Jith, Jayaratne. 1998. *Entry Restrictions, Industry Evolution, and Dynamic Effiency: Evidence from Commercial Banking.* Journal of Law and Economics, Vol. 41, No. 1, pp. 239-273.

Kroszner, Randall S., Philip E. Strahan. 1999. *What Drives Deregulation? Economics and Politics of the Relaxation of Bank Branching Restrictions.* The Quaterly Journal of Economics, Vol. 114, No. 4, pp. 1437-1467.

Lash, Nicholas. 1987. *Banking Laws and Regulations: An Economic Perspective.* Prentice Hall , Inc., Englewood Cliffs, New Jersey 07632.

Lence, S. H. 1997. *Recent Structural Changes in the Banking Industry.* Review of Agricultural Economics, Vol. 19, No. 2, pp. 371-402.

Martza, David, 1976. *The Location Research Program at Bank of America.* Geographical Review, Vol. 66, No. 4, pp. 469-476.

Marx, Karl, 1990. *Capital Volume 1.* London: New Left Review.

Marx, Karl, 1990. *Capital Volume 2.* London: New Left Review.

Marx, Karl, 1990. *Capital Volume 3.* London: New Left Review.

McClendon, McKee J. 1999. "*Multiple Regression and Causal Analysis.*" F.E. Peacok Publishers, Inc. Itasca, Illinois.

Menard, Scott. 2002. *Applied logistic regression analysis, 2nd Edition*. Thousand Oaks, CA: Sage Publications. Series: Quantitative Applications in the Social Sciences, No. 106. First ed., 1995.

Neff, David L., Paul Ellinger, *Participants in Rural Bank Consolidations.* American Journal of Agricultural Economics, Vol. 78, No. 3. 1996, 721-727.

O hUallachain; Neil Reid. 1991. *The Location and Growth of Business and Professional Services in American Metropolitan Areas, 1966-1986.* Annals of the Association of American Geographers, Vol. 81, No. 2. pp. 254-270.

Parenti, Michael. 2002. Democracy For the Few, seventh edition. Wadsworth/Thompson Learning

Rhoades, S. A. *Bank Mergers and Industrywide Structure*, 1980-94. Washington DC: Staff study 169, Board of Governors Fed. Reserve System, 1996. http://www.federalreserve.gov/pubs/staffstudies/1990-99/ss169.pdf

Roncek, Dennis. W. *Using Logit Coefficients to Obtain the Effects of Independent Variables on Changes in Probabilities.* Social Forces, December 1991, 70(2):509-518.

Scott, Allen J., 1990. *Metropolis: From the Division of Labor to Urban Form.* University of California Press, Ltd, 1988.

Storper, Michael; Richard Walker. 1989. *The Capitalist Imparative: territory, Technology, and Industrial Growth,* Basil Blackwell Inc.

Tilly, Charles. *The State of Urbanization.* Comparative Studies in Society and History, Vol. 10, No. 1. (Oct., 1967), pp. 100-103

Tirtiroglu, Dogan, Kenneth N. Daniels, Ercan Tirtiroglu. 2005. *Deregulation, Intensity of Competition, Industry Evolution, and the Productivity Growth of U.S. Commercial Banks.* Journal of Money. Vol. 37, No. 2, pp. 339-360.

Yeats, Alexander J., Edward D. Irons, Stephen A Rhodes. 1975. *An Analysis of New Bank Growth.* The Journal of Business, Vol. 48, No. 2, pp. 199-203.